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President's Report

For the year ending
30th June, 1923

1922/1923

PRESIDENT'S REPORT

1922-23

To the Governors of the University of Toronto:

GENTLEMEN:—

I beg to submit the following report on the academic work of the University and University College during the twelve months ended June 30th, 1923.

The total staff of the University and University College numbered 580, of whom 67 were professors, 59 associate professors, 51 assistant professors, 98 lecturers, associates (in medicine) and instructors in the College of Education, 1 director, 2 directors of field work, 302 demonstrators, fellows and instructors with sessional appointments. They were distributed as follows:

	Professors.	Associate Professors.	Assistant Professors.	Associates.	Lecturers.	Director.	Director Field Work.	Assistant Instructors.	Other Sessional Appointments.
University (Faculty of Arts)	25	15	17	..	30	..	..	..	71
University College	11	10	6	..	5	..	..	..	9
Faculty of Medicine	17	16*	14	21	7†	..	..	..	146
Faculty of Applied Science	10	11	9	..	14‡	..	..	..	**52
Faculty of Household Science	..	2	..	..	3	..	..	..	5
Faculty of Forestry	1	3	..	..	..	..	..	..	..
Faculty of Music	..	..	..	..	4	..	..	..	..
Social Service Courses	1	..	..	..	..	..	1	..	††12
Public Health Nursing	..	..	..	..	..	1	1	..	‡‡16
Ontario College of Education	2	3	5	..	4	..	..	14	..

*One also in University.
†Two also in Ontario College of Education.
‡Two also in University.
**One also in Medicine.
††One also in Medicine.
‡‡One also in Social Service; six also in Medicine.

In Victoria College there were:

Professors	13
Associate Professors	3
Lecturers	6
Special Instructors	2

In Trinity College there were:

Professors	10
Lecturers	8

In St. Michael's College there were:

Professors	8
Lecturers	18

The following retired from active service at the end of the session:

H. H. Langton, Esq., M.A., Librarian; A. Carruthers, Esq., M.A., Professor of Greek Archæology; James Mavor, Esq., Ph.D., Professor of Political Economy; and S. M. Hay, Esq., M.D., Associate Professor of Surgery.

Mr. Langton served the University for thirty-six years, five years as Registrar and thirty-one years as Librarian, with great fidelity. His accurate scholarship, wide knowledge and literary gifts were combined with a high degree of administrative efficiency, and out of the comparatively small funds at his disposal he created a well balanced library affording excellent opportunities for undergraduate and graduate work in many departments. We regret that physical disability led to his retirement while his general powers would still have been of great advantage to the University.

Professor Carruthers was a most accurate and conscientious scholar whose interests lay in Archæology as well as in the literary and language fields of Greek culture. Modest as to his own attainments he is one whose intellectual resources have been best appraised by the generations of students who look back to him with high respect, and by his colleagues who hold him in sincere regard. Professor Carruthers served the University faithfully for twenty-nine years.

Professor Mavor retired after thirty-one years of service. It is difficult to think of the University without him, so closely has he been identified with some of its most important departments of work. In the range of his interests, the variety of his accomplishments, and the breadth of his acquaintance in the world at large, he has stood out as one of the leading figures of the University, and by his writings also has made it known in wide circles of European society.

Dr. Hay, well known as a surgeon in this city, gave excellent service to the University for ten years through the Western Hospital.

To our regret three younger men have resigned: Mr. Hodder Williams, who has given up a fine future as a teacher to enter the publishing business of his family, Dr. Woodhead to take a position in McGill University, and Dr. Sharpe to do work with the Board of Health.

I regret to announce the death of the following members of the staff: H. J. Crawford, B.A., Professor of Classics in Ontario College of Education and Headmaster of University Schools; J. J. Mackenzie, B.A., M.B., Professor of Pathology and Bacteriology; Adrian Berrington, Associate Professor of Architecture; J. F. Uren, M.D., C.M., Associate in Surgery and Clinical Surgery and Dr. L. Bruce Robertson, Demonstrator in Surgery.

Reference was made in my last report to the great loss sustained by the University in the deaths of Principal Crawford of the University Schools and of Dr. J. J. Mackenzie, Professor of Pathology. Dr. Uren had long served as Associate in Surgery and Clinical Surgery. Mr. Adrian Berrington, Associate Professor of Architecture, came from England shortly after the war and gave promise of being a distinct acquisition to the staff by reason of his artistic gifts and his experience. Lingering disease carried him away last spring. Dr. Bruce Robertson's sudden death at the height of his power has deprived the University of a surgeon of exceptional promise and has grieved a wide circle of friends.

Leave of absence was granted to the following:

J. G. Fitzgerald, M.D., Professor of Hygiene, to undertake important work in the University of California; Adrian Berrington, Associate Professor of Architecture; and A. W. McConnell, B.A.Sc., Associate Professor of Architecture.

The following new appointments and promotions were made during the year:

In the Faculty of Arts—Appointments:—Elwood S. Moore, M.A., Ph.D., Chicago, formerly Dean of State College, Pennsylvania, professor of Economic Geology; Herbert John Davis, M.A., Oxon., associate professor of English; Louis Allen, Ph.D., Chicago, assistant professor of French; Sealey Patrick Dobbs, B.A., Cantab., lecturer in Political Economy; W. P. M. Kennedy, M.A., Dublin, Oxon., Litt.D., Dublin, special lecturer in Political Economy; Anton Frederick Robinson, B.A., lecturer in Mathematics; Arthur Francis Chesterfield Stevenson, B.A., Cantab., lecturer in Mathematics.

Promotions:—James Winfred Bridges, B.A., McGill, A.M., Ph.D., Harvard, from an assistant-professorship to an associate-professorship in Psychology; Ernest Abell Dale, M.A., Oxon., from an assistant-professorship to an associate-professorship in Latin; William Howard Martin, Ph.D., from a lectureship to an assistant-professorship in Chemistry; Vincent Wheeler Bladen, B.A., Oxon., from an instructorship to a lectureship in Political Economy.

In the Faculty of Medicine—Appointments and Promotions:—Perry Goldsmith, M.D., C.M., to the head professorship in Oto-Laryngology; William Belfry Hendry, B.A., M.B., to the head professorship in Obstetrics and Gynæcology; Robert Davies Defries, M.D., D.P.H., associate professor in Hygiene; Frederick Adam Cleland, B.A., M.B., assistant professor of Obstetrics and Gynæcology; William Herbert Lowry, M.D., C.M., assistant professor of Ophthalmology; Duncan Neil Maclennan, M.D., C.M., assistant professor of Ophthalmology; George Hunter, M.A., B.Sc., Glasgow, lecturer in Pathological Chemistry; George Dana Porter, M.B., director of University Health Service and lecturer in Hygiene; William Edward Gallie, M.D., assistant professor in Surgery; William Warner Jones, B.A., M.B., assistant professor in Surgery; Goldwin Howland, B.A., M.B., assistant professor in Medicine; John Allan Oille, M.D., assistant professor in Medicine; D. King Smith, M.B., assistant professor in Medicine; Norman Burke Taylor, M.B., assistant professor in Physiology.

In the Faculty of Applied Science—Appointments:—Howell Alfred Tuttle, B.A.Sc., lecturer in Thermodynamics.

Promotions:—Ernest Waldemar Banting, B.A.Sc., from a lectureship to an assistant-professorship in Surveying; Owen William Ellis, M.Sc., Birmingham, from a lectureship to an assistant-professorship in Metallurgical Engineering; Ross Taylor, B.A.Sc., from a lectureship to an assistant-professorship in Hydraulics.

In the Faculty of Household Science—Appointments:—Miss Helen Robertson Coatsworth, B.A., and Miss Eva Myrtle McMillan, lecturers in Household Science.

In the Faculty of Forestry—Appointments:—Theodore Woolsey Dwight, B.Sc.F., M.F., Yale, associate professor in Forestry.

In the Ontario College of Education and University Schools—Appointments:—John George Althouse, M.A., headmaster, University Schools.

Promotions:—George Augustus Cornish, B.A., from an assistant-professorship to an associate-professorship in Science; John Thomas Crawford, B.A., from an assistant-professorship to an associate-professorship in Mathematics; William Chalmers Ferguson, B.A., from an assistant-professorship to an associate-professorship in Modern Languages; Douglas Ewart Hamilton, M.A., D.Pæd., from an instructorship to an assistant-professorship in Classics.

The total number of students registered in the University in 1922-1923 was 5,044, or apart from occasionals in Social Service, 4,743, distributed as follows:

				Men.	Women.	Total.
Faculty of Arts				1,182	1,105	2,287
University of Toronto	143	105	248			
University College	616	562	1,178			
Victoria College	260	286	546			
Trinity College	70	53	123			
St. Michael's College	106	107	213			
Registered twice	13	8	21			
Faculty of Medicine				911	75	986
Faculty of Applied Science				740	1	741
Ontario College of Education				140	159	299
Faculty of Forestry				50	..	50
Faculty of Music				21	26	47
School of Graduate Studies				219	81	300
Department of Social Service				18	329	347
Department of Public Health Nursing				..	47	47
Registered twice				49	11	60
				3,232	1,812	5,044

The figures may be further analyzed as follows:—

FACULTY OF ARTS.

University of Toronto.

	Men.	Women.	Total.
Teachers' Courses and Summer Session	113	90	203
Occasional Arts students	30	15	45
	143	105	248

University College.

	Men.	Women.	Total.
First year undergraduates	231	166	397
Second year undergraduates	156	152	308
Third year undergraduates	113	116	229
Fourth year undergraduates	78	99	177
Occasional students	39	33	72
Registered twice	1	4	5
	616	562	1,178

Victoria College.

	Men.	Women.	Total.
First year undergraduates	78	92	170
Second year undergraduates	73	72	145
Third year undergraduates	48	54	102
Fourth year undergraduates	44	59	103
Occasional students	17	10	27
Registered twice	..	1	1
	260	286	546

Trinity College.

	Men.	Women.	Total.
First year undergraduates	24	22	46
Second year undergraduates	18	13	31
Third year undergraduates	14	8	22
Fourth year undergraduates	11	9	20
Occasional students	3	1	4
	70	53	123

St. Michael's College.

	Men.	Women.	Total.
First year undergraduates	33	36	69
Second year undergraduates	32	35	67
Third year undergraduates	19	17	36
Fourth year undergraduates	18	17	35
Occasional students	4	2	6
	106	107	213

Faculty of Medicine.

	Men.	Women.	Total.
First year undergraduates	79	13	92
Second year undergraduates	124	10	134
Third year undergraduates	181	9	190
Fourth year undergraduates (six years' course)	118	11	129
Fourth year undergraduates (five years' course)	204	16	220
Fifth year undergraduates	194	14	208
Occasional students	3	..	3
Candidates for D.P.H.	5	1	6
B.Sc.(Med.) undergraduates	3	1	4
	911	75	986

Faculty of Applied Science and Engineering.

	Men.	Women.	Total.
First year undergraduates	139	..	139
Second year undergraduates	167	..	167
Third year undergraduates	180	..	180
Fourth year undergraduates	254	1	255
	740	1	741

Ontario College of Education.

	Men.	Women.	Total.
Students in attendance	91	133	224
Extra-Mural students	28	22	50
Students in B.Paed. course	21	4	25
	140	159	299

Faculty of Forestry.

	Men.	Women.	Total.
First year undergraduates	11	..	11
Second year undergraduates	14	..	14
Third year undergraduates	13	..	13
Fourth year undergraduates	12	..	12
	50	..	50

Faculty of Music.

	Men.	Women.	Total.
First year undergraduates	9	19	28
Second year undergraduates	10	4	14
Third year undergraduates	1	2	3
Occasional students	1	1	2
	21	26	47

School of Graduate Studies.

	Men.	Women.	Total.
Candidates for Ph.D.	48	9	57
Candidates for M.A.	101	46	147
Candidates for M.D.	2	..	2
Candidates for M.A.Sc.	12	..	12
Candidates for M.Arch.	..	1	1
Candidates for C.E.	4	..	4
Candidates for M.E.	1	..	1
Candidates for E.E.	2	..	2
Candidates for D.Paed.	34	4	38
Graduate students	19	21	40
Duplicates	4	..	4
	219	81	300

DEPARTMENT OF SOCIAL SERVICE.

	Men.	Women.	Total.
First year full-time students	4	34	38
Second year full-time students	1	7	8
Part-time students	13	288	301
	18	329	347

DEPARTMENT OF PUBLIC HEALTH NURSING.

	Men.	Women.	Total.
Full-time students	..	45	45
Part-time students	..	2	2
	..	47	47

The numbers examined in the different departments of the University, including those persons granted standing for Military Studies, were as follows:

Arts:		
Fourth year	393	
Third year	504	
Second year	749	
First year	997	
Teachers' Course	255	
	———	2,898
Medicine:		
Fifth year	206	
Fourth year (five years' course)	218	
Fourth year (six years' course)	128	
Third year	163	
Second year	116	
First year	93	
B.Sc.(Med.)	4	
	———	928
Applied Science and Engineering:		
Fourth year	255	
Third year	173	
Second year	164	
First year	137	
	———	729
Education		347
Forestry		49
Music		30
Graduate Studies		161
Social Service		282
Public Health Nursing		45
Law		18
Dentistry		821
Pharmacy		115
Agriculture		145
Veterinary Science		35
Local examinations in Music		10,457

The degrees conferred were:

LL.D. (Honorary)	11
D.Litt. (Honorary)	1
M.D. (Honorary)	1
D.Sc. (Honorary)	5
Mus.Doc. (Honorary)	1
Ph.D	11
M.A.	66
M.D.	1
M.A.Sc.	9
C.E.	3
M.E.	1
E.E.	1
D.Pæd	2
B.A.	328
M.B.	197
B.Sc.(Med.)	3
B.A.Sc.	231

B.Arch.	11	
B.Pæd.	17	
B.Sc.F.	10	
Mus.Bac.	2	
LL.B.	6	
D.D.S.	309	
B.S.A.	106	
B.V.Sc.	33	
Phm.B.	91	
D.P.H.	2	
		1,459

The number of degrees conferred during the academic year was 1,459, by far the largest in the history of the University. This great increase was due to the number of returned soldiers in the graduating years, of whom there will be rapidly decreasing numbers in each succeeding year. It is therefore to be expected that the attendance at the University will soon return to the normal condition, which it had reached several years before the outbreak of the war. With the population of the Province not increasing rapidly, and other institutions providing for certain local demands, it may be expected that the University of Toronto will, after it has returned to its normal attendance, see but a gradual increase from year to year. This should be easily dealt with.

Standards of entrance have slowly been raised, but as in the past every gradual and reasonable rise in standards has been met by the schools of the Province, we are justified in expecting that these higher standards will not reduce the numbers of those who are really interested in securing a university education.

The University has to steer a difficult course between the Scylla of too severe standards of entrance and the Charybdis of academic examinations in which many undergraduates disappear. There is a danger of students, especially in Arts, looking to the university as a pleasant place in which to spend four years with just enough of a spurt at work in the spring to carry them through. If the idea were to get abroad that students can waste their time and do not need to take their work seriously the people of the Province would hold us to account. Also, if failures were too numerous the University would be criticised for bad teaching or for allowing ill-prepared students to enter. Well considered efforts have therefore been made to adjust standards slowly so as to bring in those who must and will work reasonably well in order to attain success. The results of the past year have shown that we are justified. In the examinations of the spring of 1922 a little over 23% of those who were entered as matriculated students in Arts failed, whereas the percentage of failures for the same class of student in 1923 fell to 16%.

The average student is not rejected on a triviality or on a regulation which has not a basis in experience. The system of supplemental examinations is more generous than in many other universities and the student who will work need not fail if he possesses ordinary ability. I am glad to say that the reports reaching me from the staff indicate that on the whole earnest work is being done and that there is distinct improvement in the undergraduate. The professional faculties with their full programme of work make continued demands upon the student throughout the session and they report very little delinquency.

The cost of an education to-day is a most serious fact that deserves the attention of all who realize that for the welfare of the people the finest quality of mind and character should be available for the professions. This is often found in quarters where money is very scarce. While it is true that character may be strengthened by the struggle for existence, and if so it is a pity that the sons of the wealthy should be denied this privilege, there is a reasonable limit, and if the barrier is too high and looms too early in the youth's career he may turn off to some path leading to more attainable ends. The accessibility of a university education is a theme to be pondered upon. It is not to be provided by lowering standards; as, for example, for doctors of medicine who may look forward to driving on the concession roads in sparsely settled districts, whereas a more exacting curriculum, equal to the best anywhere, will be necessary for those who are to enter into city practices. The degree requirements must be the same for all. In Ontario we must have nothing less than the best in education. We cannot fall below our neighbours. We cannot become second class people. But all this means an advance in the cost of education for the student. Especially has it been so since the war. An inquiry made by the Secretary of the Alumni Federation has resulted in an estimate of the average expense in the academic year for a student in Arts of about $650, and in Medicine and Applied Science of $750. These figures are probably low. The struggle is indicated by the fact that during the year loans have been continued by the Alumni Federation to the returned soldier students, the Board of Governors having also continued the deferred payment of fees to such returned soldiers as have shown their need. At the end of the year the total number of students from the beginning who had received loans was 519, many of these for more than one year. The average loan for last year was $162, and the total amount paid out to date was over $154,000. Of this amount $40,000 had been repaid, and it is coming in at the rate of $2,500 a month. In addition the Board of Governors have allowed the payment of fees amounting to $126,000 to be deferred. The magnitude of the benefit that has been conferred upon students by the Alumni Federation Fund has probably not been realized even by those who were its most ardent supporters.

The need of the returned soldier has been met, but of course there are many others who would have been glad to avail themselves of such a fund had they been eligible. In the Faculty of Arts some help comes through scholarships, but not enough. I have already brought it to the attention of the Governors and of the Province at large that a system of scholarships should be established, if possible through Boards in different school localities, and that the award should be made not merely on the basis of ability to pass an examination, but on proved need of help, and on the recommendation of some reliable committee.

One of the important events of the year was the opening in January of the new Union for the women of University College. Even in one term its privileges became apparent, and there is every reason to believe that the possession of this Union will serve to create a firm and common spirit among the women of University College. In fact this Union offers them many of the advantages that are received in colleges of other universities by complete residential life. From it further development may now gradually proceed satisfactorily.

The men of University College have to-day less unified life than the women, and I can only repeat what I have often stated in previous reports that a residential nucleus for the students of University College is greatly needed, if the College is to preserve and strengthen its own distinctive character.

The Governors and the Senate will, I am sure, be gratified by the reports of Dr. Porter and Dr. Edith Gordon as to their health work among the students, testifying as they do to their general physical fitness and to the results which have already been obtained through correction of defects, and to improvement in the health of students who have been under their supervision.

The various student organizations, especially the Administrative Council and the Athletic Directorate, have continued to give effective expression and direction to the activities of the undergraduates. It is gratifying also to have the assurance of the Warden of Hart House that its members appreciate increasingly what it offers and that good traditions are being created. His report indicates something of the range of activities which are conducted in Hart House and of the opportunities of academic life outside the class room which it affords.

For the general progress in the various Faculties and Departments of the University I would refer to the reports appended to my report. I may merely remark that I have had uniform testimony as to the high standard of average work done in the University during the year.

In the Faculty of Medicine the recent reorganization of Surgery under Dr. Clarence L. Starr has made it possible to co-ordinate and systematize the work in the various hospitals so that the students receive a course of instruction which is well balanced and uniform. By conference in fortnightly meetings and by correspondence the members of the department in the various hospitals are kept in touch with one another and discuss the material for their instruction and investigation. In Obstetrics and Gynæcology Dr. Hendry has carried on the work mainly on the lines of his predecessor, Dr. Watson, and reports that he has received most loyal help from his staff. Also, Dr. Perry Goldsmith has undertaken with much energy the conduct of the department of Oto-Laryngology to which he was appointed on the retirement of Dr. Wishart. The action of the Rockefeller Foundation in choosing our Department of Hygiene as one of those in which it will support fellowships for graduate study is a recognition of the work that is being carried on in this department.

The Faculty of Applied Science this year sent out the largest number of students in its history, and by organized effort through the faculty and the alumni an unusually large proportion of these graduates have found employment. Instruction is now being given in radio-telegraphy; and the housing of the wind tunnel, which has been completed, will make it possible to carry on further work in Aeronautics. The offer of graduate courses for the new degree of Master of Science is proving attractive to students, many of whom may be expected in the future to do much to develop the engineering profession both on its theoretical and practical sides.

It will be observed that the number of graduate students has increased rapidly, and the new School has already become a most important centre for advanced and research work. The generous donors of our graduate fellowships have conferred a real benefit upon the University and through the University on the national life of Canada, as they are drawing some of the best talent from other parts of the Dominion to undertake post-graduate work in a home university, thereby in a measure uniting more closely our national interests. It is interesting to observe by the report of the Dean from what widely distributed parts of the country our graduate students are being drawn.

Unusually good results have been reached in research, which is being conducted with both energy and success in very many departments of the University. A full account of the work done is given in the appended reports on Research and Publications. World-wide interest has been excited by the discovery of Insulin, to which I referred in my last report, and well deserved honours have been showered upon Dr. Banting, who in his addresses has constantly referred in generous terms to his indebtedness to the University of Toronto. Dr. Banting has always made special mention of the large share his collaborator, Mr. Best, had in the work. Through the action of the Legislature, the Governors, to their great pleasure, were able to create a Research Professorship in Medicine for Dr. Banting, and it is hoped that he is only at the beginning of a career of brilliant and beneficent discovery. Mr. Best, while continuing his medical course, has taken charge of the manufacture of Insulin. The Faculty of Medicine also has shown its high appreciation of this work by awarding to Dr. Banting the Charles Mickle Fellowship, being the annual income from an endowment of $25,000, which by the terms of the gift is "to be awarded annually to that member of the medical profession who is considered by the Council of the Faculty of Medicine of the University of Toronto to have done most during the preceding ten years to advance sound knowledge of a practical kind in medical art or science." Only two previous awards have been made, one to Dr. Pavlow, of Russia, and the other to Dr. Cushing, of Boston. Also the Reeve Prize of $50, for the best published report of work done in the laboratories by a research fellow or junior member of the staff in any department in medicine, was divided between Dr. Banting and Mr. Best.

The work of the Insulin Committee in its oversight of the world-wide distribution of the product has been continuous and very heavy, but public recognition has been given outside Canada to the original and effective way in which it has been dealt with so as to make possible the wide distribution of pure Insulin at the lowest cost to sufferers. While all the members of the Committee have shown patient and self-sacrificing labour, special mention should be made of C. H. Riches, Esq., who has given unsparingly of his time and experience for the securing of the patents.

Professor J. J. R. MacLeod has secured some remarkable physiological results in connection with Insulin, and his work in general has received expert approval as shown by his election to a Fellowship in the Royal Society and by his appointment to the Cameron Lectureship in Edinburgh University. Excellent clinical results in the treatment of diabetes through Insulin and otherwise have been brought about by the co-operation under Professor Graham of a group of young clinicians, Dr. F. G. Banting, Dr. W. R. Campbell and Dr. A. A. Fletcher, in the Toronto General Hospital. Through the generosity of the Trustees of the Hospital and help given by Mr. Rockefeller,a special diabetic clinic was established for the treatment of the disease and for the education of practitioners in the use of Insulin. These came in large numbers, not only from every part of the Province, but from every Province of the Dominion. In this work Dr. Graham and his associates have at the cost of great personal exertion rendered signal service to the public, and they have the gratification of knowing that through their work the treatment has become much more widespread and has brought relief to many sufferers for whom despair has been replaced with hope. It may be remarked that the recent organization of the department of Medicine has made possible this rapid development of Insulin on its clinical side. The results both as regards its discovery and its further development are due to the splendid co-operation of various departments in the University.

A fine spirit of scientific investigation pervades the departments in the Faculty of Medicine, a large number of young men being actively engaged on research problems. An evidence of what has been done in the past is to be found in the high honour conferred upon Dr. W. E. Gallie, through the invitation to him to become Hunterian Professor in the Royal College of Surgeons in London next year. It was also a matter of gratification that Dr. C. K. Clarke, former Dean of the Faculty of Medicine, was asked to deliver the Maudsley Lecture during the last summer, a high distinction in which his long services in Psychiatry were honourably recognized. In Professor Henderson's laboratory a notable piece of research was done by Dr. William Easson Brown on Ethylene as a new anæsthetic, which has attracted favourable attention.

A striking piece of work was done in the department of Physics when helium was liquefied by Professor McLennan and his associates in such quantity that experiments may hereafter be conducted at the lowest possible temperatures. In the Fisheries Laboratory Dr. Clemens has obtained some data which may be of great commercial value in connection with the fresh-water fisheries of Ontario. Dr. Chant conducted a small expedition, along with that of Dr. Campbell of the Lick Observatory, to West Australia to observe the eclipse of the sun in September, 1922. Of the several expeditions, sent to different parts of the world this was by far the most successful, and results were obtained in confirmation of the Einstein theory.

In the department of Mining Engineering, Professor H. E. T. Haultain and Professor F. C. Dyer have secured excellent results from their researches in the crushing of ore in tube mills. These researches have attracted widespread attention among mining engineers in Canada and the United States. Professor Victor J. Harding, of the department of Pathological Chemistry, has completed a very valuable research which is described in detail in the report of the Dean of the Faculty of Medicine. A valuable research in the kiln-drying of lumber, recently completed by Professor Peter Gillespie, will have an important bearing on the manufacture of furniture.

Unfortunately the expected fulfilment of the long deferred hope for a new building for the Faculty of Forestry and department of Botany has not been realized. The building should not be delayed. Students, both graduate and undergraduate, have been quite in excess of accommodation, but the tale has been told so often in my reports that I need only add that the urgency is greater than ever.

The Department of Italian and Spanish made an experiment of bringing four gentlemen, natives of Spain, to give a short course of lectures on the language and literature, and excellent results have been reported to me from this course.

Sir Bertram Windle, who has been appointed University lecturer in Ethnology, continued his very illuminating and popular lectures, taking as his subject during the past winter, "The Ethnology and Early Art of Europe." We are fortunate that a beginning in the department of Ethnology has been made in the University under such competent direction as that of Sir Bertram Windle.

The following special lectures were given: Professor H. J. Hamburger, Director of the Physiological Institute of Groningen, delivered two lectures on "The Permeability of the Kidneys to Sugar"; Professor Legouis, French exchange Professor at Harvard University, delivered two lectures, one in English on "William Wordsworth," and one in French on "Jules Tellier"; Monsieur Louis Hourticq one on "Contemporary French Art"; Mr. Henry Higgs, C.B., a British financial expert, delivered two lectures on "British Post-War Finance" and "The Financial Problems of Europe"; Professor F. L. Schoell, French exchange professor at the University of Chicago, lectured on "French Homes of the Renaissance"; Miss Italia A. Garibaldi on the "Fascisti"; Sir Henry Newbolt gave several addresses to the staff and students during his visit to Toronto in connection with the National Conference on Education and Citizenship.

The extension work of the University has developed very rapidly and during the academic year nearly 2,200 students have been enrolled in various courses, such as Workers' Educational classes, a short course for Farmers, a course on Export Trade arranged in co-operation with the Director of the Commercial Intelligence Service of Ottawa, a course on Journalism, a course on Town Planning and on Household Science. In addition to these courses Rural Tutorial Classes have been conducted in various centres in the Province, and members of the University have delivered many lectures in towns large and small.

Dr. F. A. Mouré, the University organist, gave during the year a successful series of organ recitals beginning in October and continuing with a short break until the middle of March.

A special convocation was held on April 6th in connection with the National Conference on Education and Citizenship, when the degree of Doctor of Laws was conferred upon the following: Sir Robert Baden-Powell, Monsieur Henri Hauser, Sir Henry Newbolt and Sir Michael Sadler, and the degree of Doctor of Science upon Monsieur Emmanuel Margerie.

The following benefactions have been received during the year: Rockefeller Foundation, $55,735.96; Eaton Endowment, $25,000; Carnegie Corporation, for research covering two years in physiological results of Insulin, $16,238.75; Dr. H. R. Geyelin, for distribution of Insulin, $10,000; S. Ubukata, Esq., for Ubukata Fund from which scholarships may be granted to Japanese students, $10,000; Air Board, for scientific research in connection with the Wind Channel, which has been erected, $5,000; Graham Campbell, Esq., for Fellowship in memory of the late Professor J. J. Mackenzie, $5,000; Canadian Red Cross, for the maintenance of the department of Public Health Nursing, $4,850; Graduate Fellowships again provided by Sir Edmund Osler, $500; Sir Edward Kemp, $500, Colonel R. W. Leonard, $500, Imperial Oil Company, $500, Canadian Pacific Railway, $1,500; Sir Edmund Osler, for research in Pathology, $600; Canadian Oral Prophylactic Association, for research in Dentistry, $2,775; H. A. Aggett, Esq., to found Harvey Aggett Memorial Scholarship in Applied Science, $1,500; Dr. R. A. Reeve Bequest, $1,150; Dr. R. A. Reeve Prize in Medicine, $50; Sir John Gibson, to endow the McCaul Medal, $500; Honourable Wallace Nesbitt, K.C., for Nesbitt Medals in the University Schools, $500; final payment from friends for the William Hardie Scholarship in Classics, $240; Professor G. M. Wrong, for History Scholarship, $200; Boiler Inspection and Insurance Company, for Scholarship in Mechanical Engineering, $170; Professors Beatty and Pounder, for Mathematics Scholarship, $100; for the McCaul Scholarship in Classics, G. A. H. Fraser, Esq., Principal Hutton and A. M. Stewart, Esq., $75; University College Alumnæ, for Alumnæ Prize in

English, $10; a piece of sculpture representing Youth, given by G. W. Booth, Esq., has been placed in the Quadrangle of Hart House.

All of which is respectfully submitted.

ROBT. A. FALCONER,
President.

November 8th, 1923.

APPENDIX A.

(1) Report of the Principal of University College.
(2) Report of the Dean of the Faculty of Medicine.
(3) Report of the Dean of the Faculty of Applied Science.
(4) Report of the Dean of the Faculty of Forestry.
(5) Report of the Dean of the Ontario College of Education.
(6) Report of the Dean of the Faculty of Music.
(7) Report of the Dean of the School of Graduate Studies.
(8) Report on Research.
(9) Publications.
(10) Report of the Librarian.
(11) Report of the Director of the Department of Social Service.
(12) Report of the Director of Public Health Nursing.
(13) Report of the Director of University Extension and Publicity.
(14) Report of the Director of the Department of Military Studies.
(15) Report of the Health Services.
(16) Report of the Warden of Hart House.
(17) Report of the Director of the Connaught Antitoxin Laboratories.
(18) Statement regarding the Biological Museum.
(19) Statement regarding the Museum of Geology.
(20) Statement regarding the Museum of Mineralogy.
(21) Statement regarding the Museum of Archæology.

(1) REPORT OF THE PRINCIPAL OF UNIVERSITY COLLEGE.

(*Principal Maurice Hutton.*)

The events of the Session for University College are (1) the beginning of the Administration building; University College will still share its lecture rooms with Mathematics, History, Philosophy, Spanish and Italian, and even larger lectures, with Political Science, but it will regain a large lecture room from the Registrar and another from the Bursar, besides other and smaller rooms from these officers and from the Superintendent; (2) the opening of 79 St. George Street as the new Women's Union and the conversion of the old Union at 85 St. George Street into a small residence which will hold ultimately some two dozen students.

The new Union is a great addition to the College's equipment and has an admirable lecture room (or theatre) which came into use at once for class-societies, student conventions and other bodies, for whom it was difficult before to find adequate accommodation: Convocation Hall and even Hart House Theatre and the East and West Halls are often too large for a lecture, while the Dining Hall and *a fortiori* Room 37 is too small; the new Theatre in 79 St. George Street is a happy medium.

Further, the addition of a Theatre to the new Women's Union tends to raise it to the scale of Hart House, which is the ultimate goal.

The Alumni of the College have again organized this Session a course of popular lectures in Convocation Hall, under the energetic direction of Mr.

Percy Brown; they have also conducted a vigorous campaign for bringing into the Alumni Federation graduates of the College who have hitherto been content to drop the College and the University upon graduation; a similar stimulation of interest in the College and the University on the part of their Alumnæ has been involved in the Parliamentary Committee of Inquiry into academic affairs which has been sitting during this Session; in fact, that indirect result is likely, as is usual with indirect results, to be the best result and the largest result of the appointment of that Committee.

The registration of students in University College will be found on Page 4 of this report.

(2) REPORT OF THE DEAN OF THE FACULTY OF MEDICINE.

(*Professor A. Primrose.*)

Four years have elapsed since the curriculum in medicine demanded a course of study extending over six years. We are still in the transition period between the old five and the new six-year requirements but the session 1923-24, upon which we are about to enter, will see the completion of the studies of the last group of students eligible to graduate under the terms of the old curriculum. In the final years we are at present handicapped by the two groups of students. The difficulties are further increased by the fact that the number of students in the final years is excessive owing to the circumstance that they constitute a group who began their studies in the year immediately succeeding the war at a time when an abnormally large number entered upon the study of Medicine.

For the past two sessions a regulation was in force limiting the number of students in the entering class. The opinion was expressed in the Dean's report a year ago that the requirements of Honour Matriculation, which were about to come in force, would result in confining the entering class within reasonable limits. This hope has, thus far, been realized as indicated by the fact that the number of students entering last session was only 92 compared with 143 for the previous session. The facilities available in hospital for teaching purposes are necessarily limited and the wisdom of restricting the number of students in medicine is clearly demonstrated by the difficulties which at present exist in attempting to provide efficient instruction for the large classes which crowd the clinical departments.

Professor J. J. Mackenzie, the head of the Department of Pathology and Bacteriology, died on August 2nd, 1922, and Dr. L. B. Robertson, of the staff in Surgery, died on the 24th day of February, 1923. Professor Mackenzie first lectured to medical students in 1890, when he was Fellow in Biology in the University; in 1900 he was appointed head of the Department of Pathology and Bacteriology in the Faculty of Medicine. His connection with the teaching staff in medicine therefore dates almost as far back as the time of the re-establishment of the Faculty which occurred in 1887. During his long period of office he performed his duties with great ability and distinction. His fine personality, his success as an administrator, his high standing as a teacher and his valuable contributions to scientific medicine, both in various learned societies and in literature, are fully recorded in the resolutions inscribed upon the minute books of the Faculty and the Senate, at the time of his death. The loss caused by his death will not only be felt in the Faculty of Medicine but in the University as a whole, and among a wider circle of scientists at home and abroad who knew him as a friend and set great value upon his high attainments. Dr. L. Bruce Robertson was thirty-eight years of age at the time of his death. As one of our younger surgeons he attracted much attention because of the exceptional character of the work which he accomplished both as a teacher of clinical surgery and in his research work. The latter is more particularly evident in the contribution he made to surgical practice in connection with the transfusion of blood. He was a pioneer in introducing this life-saving measure at the front during the war. Later, in civil practice, he extended his methods to the treatment of toxæmies in a manner which will remain as a permanent memorial of his work. The University has suffered severe loss in the death of this brilliant young surgeon.

Dr. Oskar Klotz has been appointed Professor of Pathology and Bacteriology. He graduated from the University of Toronto in 1902 and subsequently spent five years in the Department of Pathology at McGill University and in the Royal Victoria Hospital, Montreal. In 1910 he became Professor of Pathology and Bacteriology at the University of Pittsburg. Two years ago he resigned the position at Pittsburg on being appointed by the Rockefeller Foundation to carry out work of an administrative and organizing character in South America. He had completed this task when he was appointed by the University of Toronto as successor to the late Professor J. J. Mackenzie. Dr. Klotz has attained a reputation in Pathology of the highest order. His contributions to medical science in his department have received wide recognition and he has attained a position in the front rank of the leading Pathologists of this Continent. The University may well consider itself fortunate in having secured the services of one who has such a brilliant record.

Honours have been bestowed upon certain members of the staff in recognition of valuable contributions to scientific medicine, of which the following may be cited:—

Professor J. J. R. Macleod has been created a Fellow of the Royal Society and Cameron Lecturer in the University of Edinburgh.

Dr. F. G. Banting has been awarded the Charles Mickle Fellowship for 1923 by the University of Toronto and appointed Professor of Medical Research in this University. He was also voted a life annuity by the Canadian House of Commons.

Professor C. K. Clarke was chosen to deliver the Maudsley lecture on Psychiatry before the Congress of the British Medico-Psychological Association.

Dr. W. E. Gallie has been appointed Hunterian Professor in the Royal College of Surgeons of England.

A generous donation of $5,000 has been made by Graham Campbell, B.A., M.B., C.M., for the purpose of instituting a memorial in memory of the late J. J. Mackenzie. It has been determined to use the annual income from this as a prize to be awarded to the student in the final year who has done the best work in Pathology and Bacteriology.

The organization of the clinical Departments as at present constituted is eminently satisfactory. It is well known that the enviable position in which these departments find themselves has been made possible by the endowment of the department of Medicine by the late Sir John Eaton and Lady Eaton, and by the annual donation of $50,000 provided by the Rockefeller Foundation. The latter made it possible to reorganize the Department of Surgery. The existing organization has attracted widespread attention, many prominent teachers from abroad have visited our clinics and laboratories for the purpose of learning our methods and have been most favourably impressed. Eulogistic references have appeared in the medical press in England and it becomes quite obvious that our present status in clinical teaching is regarded as a model of excellence and efficiency.

The best evidence of the success of the reorganization of the clinical departments is found in the remarkable activity and enthusiasm displayed within these departments. The clinical teaching is co-ordinated and systematized and has reached a high standard of efficiency such as has not hitherto been attained. The students respond in a manner highly satisfactory, their work is more thorough and comprehensive, they evince an interest and concentration of effort in their work which is admirable. One of the striking features of our present organization is noted in connection with the activities of the staff. They have shown remarkable interest in their staff meeting which has proved one of the most valuable innovations under the present system. The most noteworthy feature of the results attained, however, is in the extraordinarily large number of problems of research which have been successfully undertaken by members of the staff and which have added valuable contributions to the practice of scientific medicine. The present organization of the clinical departments has further resulted in marked increase in efficiency in the standard of service rendered to the hospital patients.

In the Department of Medicine, Doctors F. G. Banting, W. R. Campbell and A. A. Fletcher have conducted investigations in the clinical use of Insulin. The fact that it relieves the cardinal symptoms in severe cases of diabetes mellitus has been confirmed in over one hundred cases. A series of papers has been published in scientific journals by these workers collectively and individually, which have placed on record the results of their investigations as to the direct therapeutic value of Insulin, including its specific action in coma. They have also established the important fact that overdosage of Insulin is followed by a typical reaction which is relieved by the administration of glucose. Other problems of research are in progress in the department of Medicine.

The gift of Mrs. A. R. Clarke made it possible to establish and equip two of the clinical laboratories in the medical wards. These have been completed and a technician has been appointed by the hospital to take charge of one of them. The laboratory equipped for clinical chemical investigation has been of the greatest service to the staff in investigations carried out on the Insulin treatment of diabetes mellitus.

In the sub-department of Pediatrics, it is noted that important problems of research have been conducted in the nutritional research laboratory of the Hospital for Sick Children by members of the staff under Dr. Alan Brown.

In the Department of Surgery, after the completion of two years, it is found that the reorganization under one departmental head is eminently satisfactory. Of the special features of the present system one may note the success obtained by the teaching of surgical pathology as an introduction to surgery in the fourth year of the six-year course. In this class the student has the opportunity of observing in the laboratory for himself various pathological processes in actual operation. There are also a series of demonstrations of surgically applied anatomy on the cadaver and a special class in minor surgery.

A number of valuable contributions of an original character have been made to surgery by members of the staff. Of these we may mention the work of Gallie and LeMesurier in fascial transplantation; the metabolism of fractures by R. A. Harris and (in collaboration with Dr. Tisdall) results in Heliotherapy; the elimination of toxins by the thoracic duct in intestinal obstructions, by Dr. W. A. Costain, and investigation on paralytic ileus by C. B. Parker and E. E. Shouldice.

In the Department of Obstetrics and Gynæcology the plan of teaching of former years has been continued. This has proved an unqualified success. There, as elsewhere, the department has been handicapped by the large size of the clinical class, but this will be rectified in the near future. The staff has been slightly increased by the addition of an assistant professor and a junior full-time demonstrator, the latter doing special work in connection with the Department of Pathological Chemistry. A metabolic unit has recently been established to aid in the investigation regarding the toxæmias of pregnancy.

There have been no changes in the teaching staff of the Department of Ophthalmology. In Oto-Laryngology, Dr. D. E. Staunton Wishart has been appointed a full-time demonstrator and is conducting research work in addition to his duties on the teaching staff. In both these departments instruction has been carried on as hitherto to limited classes; the lectures in Oto-Laryngology have been reduced to about one-half the former number.

In the Department of Therapeutics, Dr. F. M. R. Bulmer as full-time fellow has continued to make satisfactory progress in special research work. In the Department of Psychiatry, important progress has been made in that optional classes were conducted for the first time. These optional classes promise to be of the highest value in providing students with a thorough grounding in a difficult subject. The establishment of a Psychiatric Hospital at Surrey Place in the immediate future will greatly enhance opportunities for work of the most comprehensive character and, in future, students who have had these advantages will graduate with qualifications in Psychiatry and Psychology which will fit them admirably for appointments, in the Province and elsewhere, leading to the intelligent development of psychiatric medicine.

The new building which has been completed for the Department of Anatomy constitutes the most important addition to our laboratory equipment which has been made in recent years. The formal opening has been arranged to take place early next session, but it was found possible to transfer the work of the department to the new premises for the Easter term of last session. The facilities thus provided for undergraduate study and for research work are excellent and will prove to be of the highest value in the conduct of the varied activities of the department.

The teaching in the Department of Physiology, as conducted under the requirements of the six-year curriculum whereby the student covers the whole field of human physiology in one session, is proving decidedly superior to the old method of extending the course over two years. This is of special value in view of the fact that the student is, at the same time, studying Biochemistry. The student who thus acquires a thorough grounding in the subject in one year is in a position in subsequent years, if he selects Physiology as an option, to devote time to advanced practical work in those parts of the subject which have a high clinical value. The staff has been subject to considerable change during the year, particularly in the junior positions and in general each member has devoted one-half of his time to teaching duties and the other half to research. Research has covered a wide field, particularly in connection with the various physiological problems arising out of the discovery of Insulin. The research has been greatly assisted by financial aid received from the Carnegie Corporation.

The staff in the Department of Biochemistry has, for the past session, and for the first time in its history, been constituted solely of full-time teachers. This has resulted in a notable improvement in the quality of instruction in the elementary laboratory courses. The Department, however, is still understaffed and will never be wholly satisfactory until provision is made for the addition of an assistant professor. Under the terms of the new curriculum a course in advanced biochemistry is given only to those who select it as an option. The class in advanced work is in consequence smaller but a larger amount of time is devoted to their instruction. The results attained indicate a distinct improvement.

Work in the Department of Pharmacology was seriously interrupted by a fire which occurred on February 10th and which resulted in a considerable amount of destruction to the equipment employed for research. Undergraduate teaching was little affected by this incident. The staff has never been more complete or efficient and the results attained have been of the most satisfactory kind. During the year a number of research problems have been in progress. There has been some congestion in the laboratories and an increase in detail in the administrative requirements, due to the fact that facilities were provided for Dr. F. G. Banting in connection with his work on Insulin.

The Department of Pathology and Bacteriology since the death of Professor J. J. Mackenzie has been efficiently administered by Dr. H. B. Maitland who, with the co-operation of all members of the staff, has succeeded in continuing the work of the department throughout the past session in a manner highly satisfactory. During the year an optional class in Immunology was inaugurated. Valuable work has been done, under the direction of Dr. W. L. Robinson, assisted by members of the clinical staff, in cataloguing and organizing the museum for teaching purposes. Various problems of research have been in progress which have yielded results of considerable practical value.

A change in the staff in the Department of Pathological Chemistry was made when Dr. J. B. Collip resigned and Mr. G. Hunter was appointed as lecturer. The new work initiated last year and referred to in the Dean's report in the method of carrying out clinical laboratory work has been continued and has proved satisfactory. Professor Harding has completed a research on the etiology and treatment of nausea and vomiting in pregnancy, which has now resulted in a valuable clinical application of his findings in the care of such patients. Other problems of research are in progress in the department.

In Hygiene and Preventive Medicine undergraduate training has been provided both to medical students and to those of other faculties. Six candidates were enrolled for the Diploma of Public Health. Extension lectures and demonstrations have been conducted by members of the staff and the exceptional facilities available in the Connaught Laboratories have been effectively utilized by members of the staff in conducting research. Professor J. G. Fitzgerald, having been granted leave of absence, has spent the academic year in the Department of Bacteriology in the University of California. The department, in his absence, has been conducted by Dr. R. D. Defries.

In the preliminary science departments we may note the continued efficiency of the instruction given to medical students in the Department of Biology, Chemistry and Physics.

A Department of Radiology has now been organized with Dr. G. E. Richards as administrative head. A series of ten lectures are given in the fifth year and the students of the sixth year are to receive twenty lectures and demonstrations.

Graduate Study:—The Faculty have made provision for graduates who wish to refresh their knowledge of modern medicine, by permitting them to attend the courses given in the senior undergraduate years. A special committee has been appointed for the specific purpose of assisting the graduate to obtain full advantage of the facilities which are thus offered. Several special short graduate courses have also been provided. These cover the subjects of Medicine, Surgery and Obstetrics. A summer course of a month's duration is given in Pædiatrics to graduates at the Hospital for Sick Children. Short courses in Radiology have been arranged. Each course will be of one month's duration. In addition to this the Faculty of Medicine has recently instituted a graduate course leading to a Diploma in Radiology. The course of study will be comprehensive, including a special course in Physics as well as the clinical applications of X-ray and Radium. The course extends over a period of one winter session of eight months.

Extension Lectures:—In conjunction with the Ontario Medical Association lectures, demonstrations and clinics were provided by the Faculty staff in different parts of the Province. This work has grown in importance. Some idea of its magnitude may be estimated when it is stated that last session no fewer than one hundred and fifty papers were read before local Medical Societies outside of Toronto by members of our teaching staff.

Research:—During the past session a large amount of Research work has been undertaken in the different departments of the Faculty of Medicine. Certain of the problems solved have been of purely scientific value, while others have had an immediate application in the practice of medicine and surgery. An account of this research work will appear, in detail, in another portion of the President's Report, but it may be noted here that improved organization of staff, co-ordination of effort and increased laboratory facilities have recently contributed in large measure to stimulate effort in scientific research and thus have made possible the excellent results achieved.

(3) REPORT OF THE DEAN OF THE FACULTY OF APPLIED SCIENCE AND ENGINEERING.

(*C. H. Mitchell, Esq., LL.D., D. Eng.*)

The Session now concluded has been notably successful in various respects. The application and effective work of staff and students has been the best since the war and the volume of work done in the various departments has been much greater than usual.

The very large fourth year, 253 graduating, has been unprecedented not only in numbers but in type, quality and ability generally. The average age is over twenty-five years and about 60 per cent. have seen war service. It is interesting to note that these are distributed, 40 in Civil Engineering, 20 in Mining, 56 in Mechanical, 54 in Chemical, 63 in Electrical, 8 in Metallurgical and 12 in Architecture. A departure was made this year in holding the Convocation for conferring degrees in this Faculty as soon after the examination as possible, the first of May. This change was very satisfactory and appeared fully warranted as there were nearly twice as many present to receive degrees as has been usual at the June Convocation.

The curriculum changes effected last year are now well established and the year's work appears to have justified them. In some directions these have entailed much extra work, especially in laboratories, due not only to larger groups but to more diverse work by the different departments. This has brought increased burdens on the staff both in work and time, as indicated in student-hours. It is interesting to observe the growth and extent of some departments in this respect. For instance in the laboratories of the Electrical Engineering Department there have been 2,528 student-hours per week, being 16 per cent. more than last year. The new course in Radio Telegraphy, as an option in the fourth year, has proved very satisfactory but has contributed slightly to this increase. In the two laboratories of the Mechanical Engineering, Thermodynamic and Hydraulic Departments, there have been 1,101 and 1,580 student-hours per week respectively, while in Machine Design there have been 1,085 hours per week. In each of these departments instruction has been given to students of all other departments in the Faculty except Architecture. In the Department of Mining Engineering, with about the same number of students as ten years ago, there were during the past year, from two to three times the number of classes and class hours; this means, among other requirements, more space necessary for the laboratories. In the Department of Chemical Engineering the very large fourth year made a difficult situation both as to staff and space, and though large classes will continue and this department will still be very crowded for space, the temporary expedients that have been employed will not now be required. The Department of Architecture has also had a difficult year with its staff depleted by illness and the absence on leave of one of its professors.

The post-graduate work done by the various departments of this Faculty has been more extensive this year and has been carried out in connection with the School of Graduate Studies. There has been considerable diversity in the nature of the instruction and research work in the laboratories. This is the first year of operation under these arrangements and they give indications of working out on a sound and satisfactory basis.

Conferences were again carried out this year, one in Water Power and one in Town-Planning and Civics. A very useful exchange of lectures was also effected in Metallurgy between professors of this University, Queen's and McGill. It is gratifying to observe that members of the staff of this Faculty are taking an increased part in the activities of the Engineering profession and professional organizations concerned with the various branches as represented in the several departments of the Faculty. It is also to be noted that there is an increasing co-operation between the Faculty and the Engineering Alumni, evinced not only in the annual reunions but in the recent interest of the graduates in encouraging the movement to establish post-graduate work in hydro-electric power.

The necessity for retrenchment the past several years has been recognized but it is pointed out that the requirements of a Faculty of this nature are large and appropriations must be well maintained if the efficiency is to be kept up. While it is desirable that the salaries in the lower grades be gradually increased as an incentive to good service, it is quite as desirable that there be similar increments for good work and endeavour on the part of professors and associate professors. This Faculty has taken its part in the retrenchment in apparatus and supplies and will willingly continue if necessary, but there must shortly come a time when there will have to be generous expenditures for much needed apparatus and additional space in various departments. An example is the new large testing machine awaited now for many years in Applied Mechanics. Other requirements are additional staff in the Electrical Department and the establishment of work in Ceramics in connection with the Department of Metallurgical Engineering.

The research work has gone well in the School of Engineering Research of this Faculty. The researches have been of a character that are of genuine use to the many industries concerned and the complimentary references to this work and the contents of No. 3 Research Bulletin recently issued are a great encouragement to extend and improve this portion of the activities of the Faculty.

A new feature has been the revival of effort to assist the graduating class of this Faculty in obtaining positions. For this purpose a special organization was arranged in the spring months to get graduates in touch with possible employees. The funds required, though a small amount, have been derived from the University, the Alumni and other sources. This has been a marked success and it is most desirable that it be continued, not only for the benefit of the graduates themselves but as a valuable process of University publicity, extension and service to the country.

Appreciation is felt regarding the establishment of a new scholarship for the Second Year, to be known as the "Harvey Aggett Memorial Scholarship," the gift of Mr. J. T. Aggett, of Toronto, in memory of his son, the late Lieutenant W. H. Aggett, a student of that year in 1915, who was killed at Passchendaele in November, 1917.

The members of the Faculty deeply regret the untimely death during the Session of Professor Adrian Berrington, Associate Professor of Architecture, who was held in high regard by staff and students alike.

(4) REPORT OF THE DEAN OF THE FACULTY OF FORESTRY.

(*Dr. C. D. Howe.*)

The Session just completed is the first since the entrance requirements to our Faculty have been raised from Junior to Senior Matriculation. Last year our registration was the highest in the history of the school, namely, 62 students in attendance, of whom 59 took examinations. This year the more advanced standing is reflected in the smaller number of students in the entering class, and also in the total registration, which is 50 students, of whom 49 were examined at the final examinations. That the higher entrance requirements have brought to us a more mature type of young man, who is a more earnest student, is shown by the results of the year's work. Of the 21 members of last year's freshman class, of whom 16 were newcomers, 7 passed, 5 had honours deferred, 6 failed, and 3 did not finish the year because of illness or for other reasons. This year the freshman class numbers 12, of whom 7 were newcomers. The results of the examinations show only one failure, 3 have supplemental examinations to write, one dropped out before examinations, and 6 passed with good standing.

The Forestry Branch of the Province still continues the enlargement of its technical staff for the care of its forests. Ten of the 12 members of this year's graduating class have gone to the employ of the Provincial Government service, one has gone with the Dominion Forestry Branch, and one with a private pulp and paper company. Continuing the work of making a survey of the forests of the northern part of the Province, begun two years ago, the Ontario Forestry Branch is this summer employing 22 of our undergraduates on this work, parties having gone out from Biscotasing shortly after the completion of the college year, on a survey of the Mississauga Reserve. Eight undergraduates are working through vacation on the forest reserves in the West under the jurisdiction of the Dominion Forestry Branch, and 6 are with private pulp and paper or lumber companies.

It is with a feeling of sadness that I make record in this annual report of the death in February last of Dr. Bernard E. Fernow, the first dean of the Faculty, who was highly honoured and much loved by both the members of his staff and the many students who received from him instruction in the science which he spent his life in developing and extending, having well earned the title so often applied to him, that of "the father of forestry in America." But it is with pleasure that I record that some months prior to his death the new building for instruction in forestry at the University of Cornell, where Dr. Fernow established the first forest school on this continent, was dedicated to him as "Fernow Hall."

Upon Dean Fernow's retirement in 1919 no additional member was added to the staff, his three colleagues having carried on the teaching work since then, but this session the appointment of a new associate professor brings the staff up again to the number of four instructors. Mr. Theodore W. Dwight is the new appointee. He graduated from our school in 1910, took the degree of M.F. from Yale Forest School in 1911, and since that time has been employed by the Dominion Forestry Branch, having risen to the position of assistant director of the service.

I feel that I cannot close this report without once more urging the necessity of a new building, with more convenient and modern facilities, to enable the teaching staff to give the students better instruction in the subjects which are to be the basis for their life work, a work which is essentially patriotic in the results it seeks to bring about, namely the care and development for the people of the country of one of the country's greatest natural resources—the forests.

(5) REPORT OF THE ONTARIO COLLEGE OF EDUCATION.

(*Dr. W. Pakenham*).

The total registration for the session was 422 against 353 for the previous session The most marked difference appears in the courses for high school assistants and specialists where the attendance has increased by 50 per cent. Improvement in high school salaries and the admission of graduates in Commerce, Agriculture and Applied Science to high school teaching posts go far to explain the increased attendance, but the chief explanation is the abnormal demand for high school teachers. High school attendance in Ontario is increasing by leaps and bounds.

The new buildings and equipment of the College of Education, including the gymnasium, and the art, household science, and manual training rooms, so urgently needed for the last four years, will be ready for occupancy during the early autumn of the session of 1923-24.

During the session just closed two important changes were made in the staff. Mr. J. G. Althouse, M.A., headmaster of Oshawa High School, was appointed headmaster of the University Schools. As it has been found that the duties of the headmastership are heavy enough to demand the undivided attention of one man, the instructorship in Methods in Classics, which has hitherto been combined with the headmastership, was separated from it, and Mr. D. E. Hamilton, M.A., D.Pæd., instructor in the University Schools, was promoted to an assistant-professorship in Methods in Classics. The records of Mr. Althouse and Dr. Hamilton give no reason to doubt that these are happy appointments.

The School, the educational journal published by the College of Education under the editorial management of Professor W. E. Macpherson, the librarian of the College of Education, continues to prosper. It is now the most influential educational journal in Canada. For its success Professor Macpherson and his chief co-workers, Professors J. T. Crawford, G. A. Cornish, and G. M. Jones, should receive the thanks of the College of Education and the University.

With the appropriation of available ground space by the new buildings, the question of playfields for the University Schools now demands anxious consideration. Difficult and expensive as the provision of grounds may be, further delay has now become impossible. Some action must be taken immediately.

(6) REPORT OF THE DEAN OF THE FACULTY OF MUSIC.

(*Dr. A. S. Vogt*).

The number of students enrolled in connection with the courses leading to the degree of Bachelor of Music again shows an increase over any previous season, the total being 46 as compared with 44 in 1920-21. Of this number, 27 registered in the first year, 14 in the second, 3 in the third and two were occasional students. A most important feature of the registration for the year lies in the fact that 27 first-year students were registered as compared with 18 for the first year in 1920-21. It is also worthy of note that only two of the registrants this year were occasional students as compared with 15 last season.

The special series of 18 lectures delivered by members of the Faculty of Music during January, February and March were as follows:

Healey Willan, Esq., Mus.Doc., F.R.C.O.:

11 a.m.—Lecture Hall, Toronto Conservatory of Music.
January 15—"The Laws of Part Writing."
January 29—"Modulation."
February 12—"Harmonization of Melodies."
February 26—"Counterpoint in two and three Parts."
March 12—"Counterpoint in combined species."
March 26—"Double Counterpoint and Canon."

Albert Ham, Esq. Mus.Doc., F.R.C.O.:

4.30 p.m.—Room 37, University Main Building.
January 12 } "A short Review of the 'Passion' Music by Graun (*The Death of Jesus*)
January 26 } and J. S. Bach (*St. Matthew and St. John*)."
February 8 } "Historic Hymn-Tunes, both ancient and modern."
February 15 }

F. A. Mouré, Esq., Mus.Doc.:

4.30 p.m.—Room 37, University Main Building.
January 22—"French Composers between Rameau and Berlioz."
February 5—"The Neo-Russians—Glinka, Moussorgsky and Rimsky-Korsakoff."
February 19—"The Later Russians—Skryabin, Stravinsky, etc."
March 5—"Lutes and Viols."

H. A. Fricker, Esq., M.A., Mus.Bac., F.R.C.O.:

4.30 p.m.—Room 37, University Main Building.
January 19—"Tudor Music."
February 2—"The Madrigal."
February 23—"The Requiem"—Brahms.
March 9—"The Early Symphony."

The year witnessed a remarkable growth in the local examinations in Music, which, since the acquirement of the Toronto Conservatory of Music by the University, have been conducted by the former institution. The number of candidates in connection with these examinations during the season totalled 10,457. These were distributed as follows: piano, 7,562; organ, 19; singing, 357; violin, 367; sight-singing, 96; theory of music (rudiments, harmony, counterpoint, etc.), 2,056. The continued development of interest in these examinations, due in great measure to their practical endorsation by a preponderating number of the foremost teachers of music throughout Canada, combined with the value which is being attached to the Conservatory's certicates of proficiency by students, parents and the profession generally, testify to the national prestige and influence of the Conservatory, which more and more is maintaining its pre-eminent position as an outstanding factor in the musical educational life of Canada.

The eight organ recitals given in Convocation Hall during the winter months by the University organist, Dr. F. A. Mouré, which again proved to be of a very high order, were attended by large audiences who were deeply impressed by the artistic quality of Dr. Mouré's performances, and by the remarkably wide range of compositions embraced in the season's programmes. The following composers were represented:—Bach, Handel, Schubert, Mendelssohn, Karg-Elert, Reger, César Franck, Widor, Boellman, Guilmant, Arensky, Elgar, Tschaikowsky, Debussy, Sibelius and others. In the unavoidable absence of Dr. Mouré, through illness, the sixth recital of the series was given by Dr. H. A. Fricker, of the Faculty of Music, who played works by Samuel Wesley, Brahms, Rheinberger, Schubert, Liszt and others. These recitals formed a most important and attractive feature of the season's musical life of the University.

(7) REPORT OF THE DEAN OF THE SCHOOL OF GRADUATE STUDIES.

(*Professor J. Playfair McMurrich, LL.D.*)

The first year of the School of Graduate Studies has been a most successful one and has shown a broadened interest of the teaching staff in graduate studies and a marked increase in the number of graduate students. The total number of students registered in the School amounted to exactly 300 as compared with

198 in the session 1921-1922. Of this number 280 were in residence at the University and 20 were studying *in absentia.* The increase in the registrations is partly accounted for by the inclusion of 58 candidates for degrees which were not under the jurisdiction of the Board of Graduate Studies, but are now under that of the Graduate School; nevertheless, deducting these there is still a notable increase in the registrations for the past year, 242 as compared with 198 in 1921-1922. According to their geographical distribution the students may be classified as follows:

Residents of the Province of Ontario	260
Residents of other Provinces	26
Residents of other countries	14

As compared with the preceding year the principal increase has been from students resident in the Province of Ontario, although the number from other Provinces has decidedly increased. The number of students from other countries remains the same.

Of the 300 students registered for the past year 232 had received their undergraduate training in the University of Toronto and 68 in other universities; last year 49 students were trained in other universities. Eighty-one students were members of the teaching staff of the University and 9 others were holders of fellowships, but not engaged in teaching.

The distribution of the students in the various departments, according to the subject chosen as the major subject, was as follows:—Anatomy, 1; Architecture, 1; Astronomy, 1; Biochemistry, 6; Biology, 6; Botany, 12; Chemical Engineering, 6; Chemistry, 27; Civil Engineering, 1; Classics, 8; Educational Theory, 5; English, 32; Food Chemistry, 3; Geology, 3; German, 2; History, 13; Hygiene, 2; Mathematics, 9; Metallurgical Engineering, 1; Mineralogy, 1; Mining Engineering, 4; Oriental Languages, 7; Pathology and Bacteriology, 2; Pathological Chemistry, 3; Philosophy, 29; Physics, 20; Physiology, 3; Political Science, 30; Psychology, 3; Romance Languages, 14; Zymology, 4. In addition there were 35 students registered in the Department of Education and 7 for the professional Engineering degrees.

The degrees sought are shown in the following table:

Candidates for the degree Ph.D.	57
Candidates for the degree M.A.	147
Candidates for the degree M.D.	2
Candidates for the degree M.A.Sc.	12
Candidates for the degree M.Arch.	1
Candidates for the degree C.E.	4
Candidates for the degree M.E.	1
Candidates for the degree E.E.	2
Candidates for the degree D.Pæd.	38

During the session 10 students completed the requirements for the degree Ph.D.; 65 those for the degree M.A.; 1 those for the degree M.D.; 9 those for the degree M.A.Sc.; 3 those for the degree C.E.; 1 those for the degree M.E.; 1 those for the degree E.E.; and 2 those for the degree D.Pæd.

The titles of the theses submitted for the degree Ph.D. were as follows:

W. S. Dyer: "Stratigraphy and Palæontology of the Credit River Section of the Upper Cincinnation Series of Ontario."

Miss N. H. C. Ford: "A Comparative study of the Abdominal Musculature of Orthopteroid Insects."

G. F. KINGSTON: "The Nature of Belief."

H. G. W. LUCAS: "A Chemical Study of Bios."

C. C. MACKLIN: "The Skull of a Human Fetus of 43 Millimeters Greatest Length."

H. G. ODDY: "The Friedel and Crafts' Reaction:—Some Preparations from Maleic and Fumaric Acids."

H. B. SIFTON: "Some Characters of Xylem Tissue in Cycads. The Bar of Sanio and Primordial Pit in the Gymnosperms."

W. E. STAPLES: "The Elihu Speeches in the Book of Job."

MISS J. G. WRIGHT: "The Pit-closing Membrane in the Wood of the Lower Gymnosperms."

J. F. T. YOUNG: "Studies in Spectroscopy and Magnetism."

The fellowships for graduate students that were provided last year by the generosity of the Canadian Pacific Railway, the Imperial Oil Company, Sir Edmund Osler, Sir Edward Kemp and Colonel R. W. Leonard, have been renewed for the session 1923-24. The following are the appointments to these fellowships for the coming year, together with the Universities from which the appointees graduated and the departments in which they will pursue their studies:

Miss K. S. Murphy, B.A., British Columbia, English.
Miss Ethel Harris, A.B., British Columbia, Romance Languages.
E. A. Hill, B.A., Manitoba, History.
Miss J. E. Murray, M.A., Saskatchewan, History.
C. K. Ganong, B.A., Acadia, Political Science.
Miss D. H. Walsh, B.A., British Columbia, Educational Theory.
Miss V. E. Dunbar, M.A., British Columbia, Biochemistry.

The Alexander Mackenzie Fellowships in Political Science and History have been awarded to:

S. J. Dempsey, B.A., Manitoba, Political Science.
Miss Ethel MacFarlane, B.A., Saskatchewan, History.

The James H. Richardson Research Fellowship in Anatomy has been re-awarded to:

W C. M. Scott.

The George Brown Memorial Fellowship has been awarded to:

L. T. Colvin.

The Ellen Mickle Fellowship has been awarded to:

J. Markowitz.

(8) REPORT ON RESEARCH.

Anatomy, under Direction of Professor J. P. McMurrich.

I beg to report as follows upon the researches carried out in the Department of Anatomy during last session. Professor McMurrich has continued his study of the Anatomy of the Renaissance period, especially that of Leonardo da Vinci, and has made considerable progress, so that there is an expectation that the work may be completed before the close of 1924. Dr. J. C. Watt completed his studies of the Precipitation of Calcium Salts in Colloid Media and has published a paper containing his results in a recent number of the *Biological Bulletin.* He has latterly been engaged upon a study of two very early human embryos which present certain features of interest. Dr. H. G. Willson continued the studies previously carried on upon the Terminal Branchings in the Human Lung by investigating these branchings in the lung of the opossum and the armadillo. This work is almost completed, and greatly enlarged reproductions of the conditions found in these two animals have been made. It is hoped that he will be able to extend these studies to other forms at the base of the mammalian series, and for that reason the results which he has obtained will be reserved from publication until the study may be made complete. Mr. W. C. M. Scott has been carrying on a comparative study of the distribution and histological structures of the Islands of Langerhans in various fishes. During the summer he continued this work at the Marine Biological Station at St. Andrews, N.B., and has gathered together a considerable amount of material upon this question and also on the embryological development of the islands in a number of fishes. It is to be hoped that this latter part of the work at least will be ready for publication before the close of the session. Dr. Mary I. Tom has begun a study of the development of the knee joint in the human embryo. Her other duties did not allow of very great progress, but the work will be continued during the present session.

Biochemistry, under Direction of Professor A. Hunter.

(1) Professor Hunter has continued his investigation of the rate of liberation of amino acids in tryptic digestion. The application of the butyl alcohol method to this problem has been improved so as to yield a quantitative recovery of amino groups, and it is hoped that the perfected method will yield interesting information.

(2) Mr. Morrell has made a very thorough study of the effect of hydrogen ion concentration upon the activity of arginase. The study has yielded very anomalous results, the explanation of which will require further inquiry.

(3) Mr. Hutchison has investigated the rate of liberation of ammonia in the ereptic digestion of protein.

(4) Mr. Borsook has completed an examination of the distribution of nitrogen in globin.

(5) Professor Wasteneys and Mr. Borsook have elaborated methods for the separate determination of proteoses, peptones and free amino acids; and are applying these methods to the problem of the enzymatic synthesis of protein.

(6) Mr. Berkeley has completed his work on the biochemical activity of various strains of botrytis.

(7) Mr. Lucas has investigated the proteins of yeast and has made in this connection certain new observations that may prove to be of importance.

(8) Dr. Eadie is engaged on an important study of the nature of the blood sugar in normal and diabetic animals.

(9) Mr. Biehn has measured the rate of the mutual transformation of creatine and creatinine at different hydrogen ion concentrations.

Three papers dealing with the research work of the Department have been issued during the year, and others are in preparation.

Biology, under Direction of Professor B. A. Bensley.

The following investigations were conducted and results prepared for publication as indicated below: B. A. Bensley, determination of post-glacial musk ox material, in press, growth stages of marsipobranchs. E. M. Walker, entomology, cutaneous myiasis of infants, published, life-histories of sarcophagid flies, subarctic dragon-flies; in collaboration with Miss N. H. C. Ford, studies on the primitive insect "Grylloblatta." Miss Ford, musculature of orthoperoid insects, completed, new parasitic wasp, published. A. F. Coventry, embryology, abnormalities, interdependence of defects, predisposing conditions of mechanical type. W. H. T. Baillie, blood flow in capillaries, reactions of protozoa, penetration of living tissue by reagents under influence of electric currents. E. H. Craigie, neurology, artificial shrinkage in grey and white matter, critique of Weigert method, changes in form of grey matter in different parts of the spinal cord, changes in vascularity of the brain from birth to maturity. J. W. MacArthur, genetics, analysis of non-mendelizing fixed hybrids, experimental material for species and variety crosses. In collaboration with E. C. Eidt, Ontario Agricultural College, Guelph, inheritance and selection of shape in bulbs and roots, analysis of breeding results in poultry and field crops; experimental biology, effects of lithium salts on embryonic development, in press; in collaboration with J. D. Olmsted, experimental effects with organic acids.

Marine biology: supervision, A. G. Huntsman; oceanic circulation; in collaboration with A. H. Leim, range of tolerance of eggs of various fishes to temperature, salinity and acidity. A. H. Leim, fauna of Shubenacadie River and Minas Basin, life-history of shad; M. I. Sparks, spawning of mackerel on Atlantic coast of Nova Scotia.

Ontario fisheries research; supervision, W. A. Clemens; physical features of Lake Nipigon, food, rates of growth and economic phases of fresh water fishes. J. R. Dymond, Lake Nipigon fishes and spawning conditions; N. K. Bigelow, plankton organisms; H. H. MacKay, ecology, shallow water organisms. F. B. Adamstone, quantitative studies of bottom organisms. W. J. K. Harkness, lake sturgeon in Nipigon waters, preliminary study looking to experiments in artificial propagation. Completed for publication six technical papers on topics above-mentioned, including study of the vertical movement of organisms by A. E. Berry, Provincial Board of Health. A field party of six workers was maintained for a portion of the summer of 1922 at Lake Nipigon.

Botany, under Direction of Professor J. H. Faull.

The Department of Botany has just closed an active year in research in which staff and graduate students have participated. The latter represent seven different institutions. The subjects under investigation have been for the main part fundamental, though many of them are of immediate interest in connection with practical human interests. Research activity has been greatly encouraged and supported by financial aids such as the special research fund, and the studentships of the Advisory Council of Scientific and Industrial Research. Among such aids mention should be made of a fellowship provided by the Texas Gulf Sulphur Company for investigations on sulphur in relation to agriculture, a fellowship awarded to Miss Catharine Graham, B.Sc.Agr. (Ont. Agr. Col.). During the year three research students received important appointments in agricultural experiment stations in Canada, and one in the Seed Branch.

The following is a summary of the researches completed during the year or in progress; the publications from the Department appear in another part of this report:

1. CRYPTOGAMIC BOTANY, MYCOLOGY AND PATHOLOGY, UNDER THE DIRECTION OF PROFESSOR J. H. FAULL.

Faull, J. H.

(1) Studies on the diseases of pulpwoods. These have been especially concerned with "red branch" of conifers, the rusts of the balsam, and butt and heat rots with regard to causes and a basis applicable to a rotation system of harvesting based on sustained yield.

(2) A continuation of studies on the biology of the true tinder fungus.

Bell, H. P.

(3) Morphological and cultural studies on balsam rusts. Three new species have been discovered, and various interesting features bearing on the life histories, hosts and classification of these rusts. The work has been completed and a detailed paper is in press.

Berkeley, G. H.

(4) Cultural studies of a group of parasitic molds of the genus Botrytis. Biochemical studies under the direction of Professor A. Hunter have been carried on simultaneously. Two papers are now ready for publication.

Fritz, Miss C. W.

(5) A fundamental study of seventeen timber-destroying fungi has been carried on, employing bacteriological cultural technique. An exhaustive memoir has been completed. This work was supported by an Advisory Council Fellowship.

(6) Studies are in progress on Coniophora, an interesting fungus genus.

Walker, A. R.

(7) Further work on *Keithia thujinis*—a fungus parasite of arbor vitae.

(8) Morphological and cultural studies of the hemp Botrytis.

McLeod, C. H.

(9) A study of the anatomy of balsam wood from trees injured by the spruce bud worm. Some very definite and constant structural changes have been found.

Darker, G. D.

(10) Morphological, cultural and taxonomic studies on the genus Lophodermium, a group of fungi largely parasitic on conifers.

Mounce, Miss Irene

(11) A study of the timber-destroying fungus *Fomes pinicola.*

(12) Studies on Pholiota in relation to its sexuality and parasitism.

2. PATHOLOGY AND PLANT PHYSIOLOGY UNDER THE DIRECTION OF DR. G. H. DUFF AND PROFESSOR J. H. FAULL.

Graham, Miss Catharine

(13) The utilization of inoculated and uninoculated sulphur in the control of *Actinomyces scabies.* This work, supported by a fellowship from the Texas Gulf Sulphur Company, is being prosecuted in three chief directions:

(*a*) Field tests of the effectiveness of the treatment upon different soil types in widely separated localities in Canada.

(*b*) Greenhouse experiments to determine the nature and limits of the "after effect" of treatment upon succeeding crop plants.

(*c*) Laboratory investigation of the H-ion concentration tolerance of *Actinomyces scabies.*

Racicot, H. N.

(14) The effect of injury to the crown of a plant upon the health and development of the root system.

3. PLANT PHYSIOLOGY UNDER THE DIRECTION OF MR. G. H. DUFF.

Duff, G. H.

(15) Carbohydrate metabolism in Phaseolus.

(16) The effect of the removal of leaf tissue upon assimilation, metabolism and transpiration in Phaseolus. (In collaboration with H. N. Racicot).

Racicot, H. N.

(17) Growth correlations in Phaseolus. An investigation of a fundamental nature arising out of the first problem. In this, a quantitative study is being made of the correlation between the mass of leaf tissue and of stem, root and fruit tissue produced in Phaseolus.

4. PHANEROGAMIC BOTANY, GENETICS AND PLANT BREEDING UNDER THE DIRECTION OF PROFESSOR R. B. THOMSON.

Poisonous Plants.

Sifton, H. B.

(18) Poison canals in *Cicuta maculata* (Cowbane). Anatomical studies have shown that in addition to the canals of the primary cortex there are others produced in the secondary tissues of the root. The development of these canals is being investigated. Chemical and anatomical work indicates that considerable portions of the plant are devoid of

poison. Feeding tests are in progress to check these results and to ascertain the effect of temperature on the poison.

Seeds.

(19) A comprehensive seed collection is being made for comparative studies.

(20) Effects of heat, cold and oxygen supply on seed germination. Seed of *Spinacia oleracea* (spinach) has been found to give stronger plants and a greater per cent. germination at temperatures of 1°-5°C. than at ordinary temperatures. Removal of the pericarp from the seed has the same effect as the low temperature in aiding germination. Equally good results are obtained by germinating the seeds under increased oxygen pressure and by the use of temperatures regularly alternating between 1°C. and 16°-20°C. Investigations are being continued to discover the fundamental basis of these phenomena.

(21) In collaboration with Dr. T. C. McMullen, Albert College, Belleville. Chemical and anatomical investigations on certain poisonous and oil-producing weed seeds are in progress, in particular at present on the French weed (*Thlaspi arvense*).

Wood Structure.

Thomson, R. B.

(22) A comparative study of the wood structure of conifers is being made dealing chiefly with the variations of the structure in different regions of the same plant and in different plants grown under various ecological conditions.

Wright, Miss J. Gertrude

(23) An article is nearly ready for publication on "The Pit-closing Membrane in the Wood of the Lower Gymnosperms" and the work is being continued in the conifers.

Resin Tissue.

Hart, N. C.

(24) The origin of resin tissue in the secondary wood of the pines.

Thomson, R. B., and Sifton, H. B.

(25) The occurrence of resin canals in seedlings and various regions of adult conifers is under investigation, especially those of the tamarack, spruce and pine. The effects of wounding and of chemical stimulation on the production of resin are also being studied.

Garden and Greenhouse Work.

(26) The main lines of work being carried on are the testing of plants for laboratory and class purposes and for hardiness and adaptability to local conditions, as well as work on methods of propagation. An article on the Iris, by Mr. A. Simpson, F.R.H.S., was published in *The Canadian Florist*, March 29th, 1923.

Genetics and Plant Breeding

This work has been greatly handicapped through lack of space and assistance. The same may be said for fossil botany.

Chemistry, under Direction of Professor W. Lash Miller.

During the past winter, in addition to the members of the staff, twenty-two students have been engaged in research in this department. Of these, eleven were graduates of the University of Toronto, five were graduates of other universities, and six were undergraduate students of the fourth year. Two held studentships and one a bursary from the Honorary Advisory Council.

The degree of Doctor of Philosophy was awarded to Mr. G. H. W. Lucas (*Chemical Study of Bios*, Prof. W. Lash Miller), and to Mr. H. G. Oddy (*Some Preparations from Maleic and Fumaric Acids*, Prof. F. B. Allan). Ten students obtained the degree of Master of Arts, viz.: Mrs. A. Atack, Miss E. V. Eastcott, Messrs. F. I. Eldon, E. Forsyth, A. R. Gordon, A. H. Heatley, G. I. Hoover, S. Lehrman, E. W. McHenry and L. J. Rogers.

Of the researches enumerated below, those on yeast were under the general direction of Professor W. Lash Miller; organic synthesis, Professor F. B. Allan; light scattering, Professor F. B. Kenrick and Professor W. H. Martin; chemical equilibrium, Professor J. B. Ferguson; electrochemistry, Professor J. T. Burt-Gerrans; analytical chemistry, Professor L. J. Rogers.

W. J. Clapson:—The characteristics of electric arcs.
S. Comey:—Oxidation of naphthols at room temperature.
S. W. Davidson, B.A.:—The preparation of Bios I and Bios II.
E. V. Eastcott, B.A.:—The natural distribution of the constituents of Bios.
Professor J. B. Ferguson:—Specific heats of aqueous solutions of phenol.
E. Forsyth, B.A.:—The reaction between arsenious acid and potassium permanganate in acid solutions.
Professor W. S. Funnell:—Partial vapour-pressure of binary solutions.
C. S. Gilbert, M.A.:—Solubilities of crystal faces.
A. R. Gordon, B.A.:—Cathodic polarization.
A. H. Heatley, B.A.Sc.:—"Throw" in electroplating baths.
G. A. Hoover, B.A.:—Adaptation of the interferometer to the determination of vapour composition.
C. Jephcott:—The reaction of phthalic acid, pyridine and aluminium chloride.
J. W. Johnston:—Determination of alkali in wood digestion liquors.
W. B. Leaf, M.A.:—Factors affecting the rate of fermentation.
S. Lehrman, B.A.:—Effect of temperature on light scattering by liquids.
F. Lorriman, B.A.:—The reaction of phthalic anhydride on acenaphthene in presence of aluminium chloride.
G. H. W. Lucas, M.A.:—The fractionation of Bios.
Professor J. W. Martin:—Determination of light scattering by liquids up to the critical temperature.
M. J. Mulligan:—Electrometric titration of ferrous solutions with bichromate.
H. G. Oddy, M.A.:—Derivatives of maleic and fumaric acids.
J. W. Rebbeck, M.A.:—Behaviour of glass on electrolysis.
Professor L. J. Rogers:—Method for the determination of halogens in certain organic compounds.
C. W. Sweitzer:—Preparation of optically empty solutions of non-volatile salts.
E. M. Taylor, M.A.:—The toxicity of acids towards yeast.

A. E. R. Westman, M.A.:—Relation between current, voltage and length of carbon arcs.

G. A. Williams, M.A.:—The solubility of helium and of hydrogen in silica glass.

Geology, under the Direction of Professor W. A. Parks.

A. Researches by Professor A. P. Coleman (Professor Emeritus):

(1) Investigation of the boulder conglomerates in the Maritime Provinces and Gaspé.

(2) Investigation of the extent and thickness of the Cordilleran Ice Sheet.

(3) During the winter Professor Coleman has been engaged in the preparation of a monographic account of ancient ice ages.

B. Researches under the immediate direction of Professor W. A. Parks.

(4) During the summer an expedition under the direction of Mr. L. Sternberg was conducted in the bad lands of Alberta in search of vertebrate fossils. Excellent results were obtained.

(5) Two heads of a new species of trachodont dinosaur were mounted and a description thereof prepared for publication. The skeleton of an armoured dinosaur was prepared and the description is now being written.

(6) Miss Madeleine Fritz has completed the description of the fossils of the Toronto district. Her contribution will appear as *Part IV, Stratigraphy and Palæontology of the Toronto District.*

(7) Mr. W. S. Dyer has completed his work on the geology and palæontology of the Ordovician section on the Credit River, Ont.

C. Researches under the direction of Professor E. S. Moore.

(8) Investigation of the silica refractories of Pennsylvania.

(9) Mr. W. P. Mackle has worked on the correlation of Cretaceous coal seams by organic evidence.

D. Researches by Professor MacLean.

(10) Investigation on the difference between the natural and the artificial weathering of stone and the relation of weathering to geological time.

History, under the Direction of Professor G. M. Wrong.

The following students were engaged in research work in the Department of History during the session 1922-23:

1. Wilfred Brenton Kerr, B.A., Oxon, "The Reign of Terror." (Degree conferred).
2. Arthur Reginald Marsden Lower, B.A., 1914, "Canadian Timber and Lumber Trade." (Degree conferred).
3. Miss Jean Victoria McClenaghan, B.A., 1922, "The Administration in Canada of Lord Dalhousie."
4. Jesse Henry Arnup, B.A., 1909, "History of the Missionary Society of the Methodist Church in Canada."
5. Harold James Bell, B.A., 1922, "The Period of the Tudor Navy."
6. Alexander Brady, B.A., 1919, Oxon., 1921, "The British Commonwealth and the Problem of Sovereignty."
7. Miss Emma M. Doran, B.A., 1922, "The Reign of Terror."

8. Arthur Garrett Dorland, B.A., 1910, M.A., 1911, "History of the Society of Friends in Canada."
9. Ernest Otto Gallagher, B.A., 1921, "English Political Philosophy: The Failure of Utilitarianism to Meet the Social Needs of England."
10. William Jackson Little, B.A., 1913, "John Wesley's Views on Economics and Politics."
11. Miss Ethel MacFarlane, B.A., 1922, "The Creation of Self-Government and the Settlement of Boundaries in the Prairie Provinces."

Mineralogy, under Direction of Professor T. L. Walker.

During the summer of 1922 Professors T. L. Walker and A. L. Parsons spent some weeks in Nova Scotia investigating the history of the North Mountain basalt and the zeolites associated with it. The material gathered has been studied in the laboratories, the result being published in *University Studies, Geological Series.* Towards the end of the summer vacation Professor Parsons spent some time in an examination of the feldspar quarries of Ontario and Quebec in order to make observations on the occurrence of rare minerals in the pegmatites, which at present are valuable principally for the feldspar which they contain. In the material gathered we have found several minerals not previously observed in Canada, two of which are of great interest because they contain uranium and radium in such quantities as to suggest possible economic importance. An account of some of these rare minerals is given in the publication above mentioned. Professor Ellis Thomson has continued his examination of the tellurides of Ontario. H. C. Rickaby made a study of the minerals associated with rock salt at Malagash, N.S. The chemical study of Canadian minerals by E. W. Todd, research assistant, has led to valuable contributions on the methods of analysis of minerals containing some of the rare elements.

Physics, under Direction of Professor McLennan.

A. *Under direction of Professor McLennan:*

(1) The Liquefaction of Helium.

By Professor McLennan and Mr. G. M. Shrum.

This research had as its immediate object the liquefaction of helium. This object was attained on January 10th, 1923, and two weeks later the Cryogenic Division of the Physical Laboratory was formally opened. On this occasion demonstrations were given of the liquefaction of air, hydrogen and helium.

(2) On the Fluorescence and Channelled Absorption Spectra of Cæsium and Other Alkali Elements.

By Professor McLennan and Mr. D. S. Ainslie, M.A.

In this research cæsium was shown to exhibit a fluorescence and channelled absorption spectrum that had not been observed hitherto.

(3) An Investigation of the Crystal Structure of Hensler Alloys by the Use of *X*-rays.

By J. F. T. Young, M.A.

This research was completed on March, 1923.

(4) On the Explosion Pressures generated by Mixtures of Various Gases and Vapours (in progress).

By Mr. H. J. C. Ireton, M.A.

(5) On Methods of Purifying and Testing Helium (completed).
By Mr. R. J. Lang, M.A.

(6) On a Study of the Extreme Ultra-Violet Spectra of Various Elements by the Use of a Vacuum Grating.
By Mr. R. J. Lang, M.A.

The spectra of silicon, vanadium, chromium and manganese have been obtained and attempts are now being made to obtain the spectra of phosphorus, sulphur, chlorine and other elements.

(7) On the Tracks of Alpha Rays in Helium and Other Gases.
By W. C. McQuarrie, M.A.

Some thousands of alpha ray tracks in helium have been photographed by the use of a modification of the C. T. R. Wilson method. A smaller number of pictures have been taken using other gases. In general these photographs support the view that in the collision between an alpha particle and an atomic nucleus there is a conservation of momentum and energy. Certain apparent exceptions to this have been recorded.

(8) On the Compressibilities of Solids by an Interferometer Method.
By H. C. Bates, M.A.

In this research the compressibilities of such crystals as fluorite, rock salt, quartz and sylvin are being investigated. Satisfactory results have already been obtained with fluorite and quartz.

(9) On the Fluorescence of Æsculin Solutions.
By Miss M. B. Kearney, B.A.

The loss of fluorescing power of æsculin under the action of light or of ozone has been investigated when the substance was dissolved in water, ethyl alcohol, methyl alcohol, glycerine, pentane, acetone and in a number of other liquids. With solutions in glycerine it was found the fluorescent power could be destroyed by ultra-violet light but not by ozone. In all other cases both agents destroyed the fluorescent power of the æsculin.

(1) Some Treboluminescent Spectra.
By Carlyle S. Beals, B.A.

An investigation was made of the spectra of several substances which showed the property of luminescence when rubbed or broken. Spectra were obtained for four different substances, manganese cerium, quartz, and the mineral, wurzite. The first two, manganese and cerium, showed a few faint lines superimposed on a continuous spectrum while the spectra due to quartz and wurzite were continuous with no lines appearing.

(11) Changes in the refractivity of excited atoms and molecules.
By H. Grayson Smith, M.A.

The change in refractivity produced by excitation by ultra-violet light has been studied in the case of hydrogen, nitrogen and mercury vapour. This change is believed to be due to the formation of atomic hydrogen and nitrogen and deatomic molecules of mercury. Some information has been obtained on the rate of recombination of dissociated hydrogen and nitrogen.

(12) The Structure of the Lines of the Balmer Series of the Hydrogen Spectrum.

By Mr. G. M. Shrum, M.A.

The structure of the Balmer lines was studied with a Summer Plate using liquid air and liquid hydrogen to cool the discharge and thus reduce the Doppler effect. The separations have been determined for the first six members of the series.

(13) On the Extreme Ultra-violet Spectrum of Carbon Produced by a Vacuum Arc.

By Mr. W. W. Shaver, M.A.

The vacuum arc spectrum of carbon has been photographed with a fluorite spectograph to about $\lambda=1320$A. The strong line of wave length, $\lambda=1656$A, hitherto recorded as a single line was found to be a triplet and the wave lengths 1335A and 1329A have been shown to be doublets.

(14) On the Characteristic X-rays from Light Elements.

By Miss M. Levi, M.A.

The purpose of this work was to throw light on the extra nuclear structure of atoms of the elements by extending the Moseley graphs for the K L and M series into the region of low atomic numbers. The difficulties in the way of producing and detecting the radiation were overcome by seeming excellent vacuum conditions. Results have been obtained so far for the critical absorption wave lengths of the K and L series of lithium beryllium boron and carbon of the L series of fluorine and of the M and N series of nickel and cobalt.

B. *Under direction of Professor Burton.*

(1) Experiments on the Mobilities of Ions and Colloidal Particles in Media of Different Viscosities.

By Professor Burton and Mr. J. E. Currie, B.A.

(2) The Influence of Agar-Agar in Changing the Sign of the Charge of Copper Colloidal Particles.

By Professor Burton and Mr. J. E. Currie, B.A.

(3) On the Use of Copper Colloidal Solutions in Place of Gold Solutions in Testing Cerebro-spinal Fluids.

By Professor Burton and Mr. J. E. Currie, B.A.

(4) Method of Measuring the Mobility of Single Colloidal Particles and Determining Their Mass by Motion Up and Down in a Vertical Electric Field.

By Professor Burton and Mr. J. E. Currie, B.A.

(5) Preparation of a Paper to Be Given at the Svedberg Symposium, University of Wisconsin, Madison, Wis., June 12-15. To be published in a monograph of the Symposium.
Title: "The Forces Determining the Limiting Sizes of Colloidal Particles."

By Professor Burton.

(6) Preparation of a Chapter for Treatise on Colloidal Solutions now in Preparation for the International Chemical Series under the Editorship of Jerome Alexander, New York.

Title: "The Determination of the Mass and Charge of Colloidal Particles."
By Professor Burton.

C. *Under the direction of Professor Satterly.*

(1) The Viscosity of a Gas and the Use of a Gas Meter for Measuring Gas Streams.
By Professor Satterly.

In this research the viscosity of a gas was measured by sending a metered quantity of gas through a capillary tube. The actual pressures at different points were measured as well as the drops of pressure over the capillary tube and over the gas meter itself. The meter may be inserted on the single side or on the low side of the capillary tube and the accuracy of its readings in the two positions is considered. The accuracy of a capillary flow working under different total pressures is also considered. When the gas stream is gradually increased the stream line flow breaks down. The point at which it breaks down with air has been studied at different temperatures.

(2) Stirling's Theorem.
By Professor Satterly.

A simple approximate proof of a well known approximate form of Stirling's Theorem for very large values of n has been worked out.

D. *Under the direction of Professor McTaggart.*

(1) A Study of the Variation of the Electric Charge on Small Bubbles of Gas in Very Dilute Aqueous Solutions.
By Professor McTaggart.

(2) A Study of the Rate of Absorption of Very Small Bubbles of Gas by Solutions.
By Professor McTaggart.

E. *Under the direction of Mr. J. F. T. Young.*

(1) The Investigation of a Method of Increasing the Dispersion of Constant Deviation Spectrographs.
By Mr. J. F. T. Young, M.A.

It has been shown that by the addition of trains of direct vision prisms it is feasible to increase the dispersion quite easily from three to four times without experiencing an inconvenient loss of light intensity.

(2) The Ultra-violet Spectrum of Chromium.
By A. B. McLay, B.A.

The spark spectrum of chromium in the ultra-violet has been studied with a Helger Quartz Spectrograph. The wave lengths and relative intensities of about 110 lines between $\lambda = 1825$ A and $\lambda = 2200$A have now been determined.

F. The Ionization Potentials of Metallic Vapours.
By Mr. A. G. Shenstone, Ph.D.

Physiology, under Direction of Professor J. J. R. Macleod.

Most of the research conducted in the Department of Physiology is related to the physiological action of Insulin. By the discovery of this hormone the physiologist is provided with a new instrument by the use of which it is possible to investigate problems in metabolism which previously could only be done by indirect methods. Besides those on the regular teaching staff of the Department, namely, Dr. J. M. D. Olmsted and Dr. H. D. Logan, several research fellows have been engaged in this work (Dr. F. N. Allan, Dr. G. S. Eadie, N. A. McCormick, E. C. Noble and Miss M. K. O'Brien) and many results of great interest were obtained during the year. It was found, for example, that the mechanism by which Insulin causes the sugar of the blood to disappear in normal animals is different from that obtaining in diabetic animals and it is now fairly evident, largely through work in which two students for the B. Sc. (Med.) degree were engaged (B. R. Dickson and F. R. Pember) that the sugar, under the action of Insulin, must become converted into some form of carbohydrate or related substance which by our present chemical methods we fail to identify. In other words, the work on Insulin indicates the possible existence of some new form of carbohydrate in the animal body. A large amount of work, particularly by E. C. Noble and N. A. McCormick, has also been done in association with the Biological Board of Canada on the source of Insulin. These two investigators have found that large amounts of Insulin are obtainable from the principal islets of such common fish as the cod and pollock, making it, therefore, altogether likely that in maritime countries, at least, fish should be an important source for Insulin. The scientific value of these observations is also of interest since it shows that the islet tissue is definitely the source of this hormone. Dr. Allan has been engaged particularly on the sugar balance of completely depancreatised (diabetic) dogs kept alive by injections of Insulin. He has made the interesting discovery that a unit of Insulin has the power to cause much more sugar to be burned in the animal body when only a small dose is given than when a large dose is given. In other words, "the glucose equivalent" of Insulin varies indirectly with the dose, which makes it futile to attempt in the clinic to assay Insulin in terms of the number of grams of sugar which it can cause to be metabolised unless this relationship is taken into consideration. Certain of the animals used by Dr. Allan lived for several months, but ultimately succumbed to symptoms of a peculiar nature, the cause of which is being thoroughly investigated at present. Dr. Olmsted and Dr. Logan contributed valuable information regarding the cause of hypoglycemic symptoms and Dr. Eadie, working under the immediate direction of Professor Hunter, was engaged in the difficult work of trying to see whether Insulin causes any changes in the stereoisomeric structure of glucose. The outcome of the year's work was extremely gratifying and has carried us a decided step forward in the investigation of the action of Insulin.

Research work in other fields was not neglected in the laboratory. Dr. M. J. Wilson was engaged in an investigation of the movements of the stomach and first portion of the intestine. This work is being done so as to acquire experience and sound knowledge of the physiology of the digestive organs.

Through sad family bereavement, Dr. N. B. Taylor was prevented from doing his usual share of work on his problem on the spread of temperature changes through the tissues.

Department of Political Economy, under Direction of Professor R. M. MacIver.

I append, as requested, a statement showing the subjects of graduate research completed within the Department during the session 1922-23, together with those at present in progress:

Researches completed, 1922-23:

The Marketing of Canadian Live Stock.—Abbott, H. J. E.
The History of the Welland Canal to 1840.—Macdougall, J. L.
The Urban Transportation Problem.—Topping, V.
Provincial Revenue in Canada.—McKague, W. A.

Researches in progress, 1922-23:

History of Labour since 1900.—Halliday, C. P.
The Concept of Sovereignty as Revealed in the Evolution of the British Empire.—Brady, Alexander.
The Range and Character of Legislation as a Criterion of Political Evolution.—Home, Miss R.
Principles of Railway Rate-making in Canada.—Dempsey, S. J.
Occupations and Economic Status of Immigrants in Toronto and District.—Hamilton, Miss B.
The Clergy Reserves.—Macdonald, Miss A.
The Canadian Mercantile Marine.—Taylor, Miss N. C.
The Winnipeg Strike.—Wilson, H. A.

Psychology, under Direction of Professor G. S. Brett.

The members of the staff in Psychology have been engaged in research on a number of problems which they have individually selected and studied. The nature of these problems and of the work done is shown in the following reports drawn up by each member of the staff.

A. *Dr. J. W. Bridges.*—Prognosis of Student Achievement: an investigation on the correlation between the results of various psychological tests and the achievement of college students as indicated by marks earned in their courses. Since achievement depends upon a combination of many mental factors, part of the problem consists in devising methods of evaluating the traits in question. The following kinds of tests are being used:

(*a*) Intelligence tests;
(*b*) Tests of emotional idiosyncrasy.
(c) Tests of emotional stability.
(*d*) Association tests to determine community or eccentricity in the sequence of ideas.

B. *Professor E. A. Bott.*—Research has been conducted on the following topics:

1. Characteristics of reciprocal wrist action.
   (A first paper (26 pp.) upon the results of this investigation was forwarded to the Brit. Journ. of Psychology, on April 1, 1923. The work is being continued upon supplementary points.)
2. Thresholds of auditory phase differentiation for various pitches and intensities.
3. The predictive value of examination results from the Junior Matriculation to graduation.

(The correlations in marks for an entire medical class of 130 students has been worked out by yearly standing and by separate subjects for the period 1917-22. The results show clearly what value may be attached to the relative standing of a student in his class at each point during his undergraduate course, assuming the standing in the final year to be a legitimate criterion of academic ability. The information from this inquiry is essential when comparing students' scores upon psychological tests with academic marks as a basis of estimating ability.)

C. *Miss K. M. Banham.*—The Measurement of Emotional Reactions. This work includes researches on:

1. (*a*) The reliability of the psycho-galvanic reflex as a measure of emotion;
   (*b*) The effect of various kinds of emotion on the psycho-galvanic reflex.
2. An attempt is also being made to formulate a test for emotional disposition for the purpose of augmenting the information derived from general intelligence tests as a factor in the prognosis of human achievement.

Zymology, under Direction of Dr. H. B. Speakman.

H. B. Speakman: Relation of the molecular configuration of the sugars to the mechanism of their fermentation by B. Granulobacter pectinovorum.

H. B. Speakman and J. F. Phillips: Continuation of the study of a bacterial association, B. Granulobacter pectinovorum with B. volutans.

H. B. Speakman and D. H. Howell: Continuation of the investigation of the effects of *X*-rays on the morphology and physiology of some of the common molds.

H. B. Speakman and A. H. Gee: Study of the influence of sodium chloride on the fermentation of maltose by yeast.

A. M. Wynne: Continuation of the study of the influence of the initial H-ion concentration of the fermentation of carbohydrates by B. Granulobacter pectinovorum, with special attention to the mechanism of the formation of the neutral products.

The following studies were carried out in collaboration with H. B. Speakman and A. M. Wynne:

L. J. Bonham and Robert Low: A preliminary investigation of the amylase of B. Granulobacter pectinovorum.

B. I. Williams: Utilization of protein by Proteus vulgaris and by B. subtilis, as influenced by the presence of carbohydrate.

H. Reynolds: Preliminary study of the utilization by micro-organisms of the products of the acid hydrolysis of wood waste.

J. C. Harston: The hydrolysis of gelatin by B. subtilis.

W. C. Henry: Nitrogen metabolism of B. Granulobacter pectinovorum, with special attention to urea and asparagine as nitrogen sources.

Report of the Committee of Experimental Research in Medicine—Dr. D. E. Robertson, Secretary.

During the year the following researches were being followed in the Laboratory of the Committee of Experimental Research, or were receiving help from the Committee and its funds:

"A Study of Transplantation of Fascia."
By Dr. W. E. Gallie and Dr. A. B. LeMesurier.

"A Study of Intestinal Obstruction."
By Dr. W. A. Costain.

"A Research on the Distribution and Elimination of Organic Arsenic Compounds after Intravenous Administration."
By Dr. F. M. R. Bulmer.

"A Study of Specific Gravity of Tissues under Conditions of Acute Ileus and Intestinal Obstruction."
By Drs. C. B. Parker and Shouldice.

"A Study of Rickets in Puppies."
By Dr. F. F. Tisdale.

"Research in Psychiatry."
By Dr. C. K. Clarke.

"A Study of Infection in Gall Bladders."
By Dr. Bates and Dr. R. V. B. Shier.

"Experiments in the Anaesthetic Properties of Ethylene."
By Dr. Easson Brown.

"A Study of Intra-Thoracic Pressure."
By Dr. A. W. Caulfeild.

School of Engineering Research, M. C. Boswell, Ph. D., Secretary.

The School of Engineering Research of this Faculty showed a steady development during the past academic year. The increasing interest in research among the students was demonstrated by the larger number of graduates who returned for a fifth year of research. Many of these held research assistantships in the School of Engineering Research. Also Bulletin No. 3, consisting of fourteen papers from four departments of the Faculty, and containing the results of original research work done in the School, was published during the year, and is now being given a wide circulation.

The following subjects of investigation, dealt with in this Bulletin, indicate the variety and importance of the research problems undertaken:

Section No. 1.—The Constitution of Rubber.
Maitland C. Boswell.

Section 2.—The Mechanism of the Catalysis of Hydrogenation by Nickel.
Maitland C. Boswell.

Section No. 3.—The Preparation of Anhydrous Formic Acid.
Maitland C. Boswell and H. E. Corman.

Section No. 4.—The Relative Lowering of Vapour Pressure of Aqueous Solutions.
Maitland C. Boswell and R. C. Cantelo.

Section No. 5.—The Determination of Carbon in Graphite.
J. T. King.

Section No. 6.—Ball Paths in Tube Mills.
H. E. T. Haultain and F. C. Dyer.

Section No. 7.—An Investigation of the Kiln-Drying of Lumber.
Peter Gillespie and A. R. Duff.

An Investigation of the Opening Up or Loosening of Glue Joints.
A. R. Duff.

The Drying of Varnish on Furniture.
A. R. Duff.

Section No. 8.—A Machine for Making Magnetic Assays.
F. C. Dyer.

Section No. 9.—Torsional Strength of Rectangular Sections of Concrete, Plain and Reinforced.
C. R. Young, W. L. Sagar and C. A. Hughes.

Section No. 10.—An Attempt to Cheapen the Production of Zirconium Dioxide.
J. W. Bain and Geo. E. Gollop.

Section No. 11.—A Study of Heat Efficiency in the Manufacture of Potassium Nitrate.
F. P. Downey and J. W. Bain.

Section No. 12.—Wing Tip Research: Part 2, Warped Tips; Part 3, Pin Tips; Part 4, Blade Tips.
J. H. Parkin, H. C. Crane and J. S. E. MacAllister.

Researches are now in progress and also papers in preparation for Bulletin No. 4, which, it is hoped, will be published during the coming academic year.

Dental Research—A. E. Webster, D.D.S., M.D., Secretary.

The work done in this department during the past year has included:

1. A review of the literature published between 1918 and 1922 on diet in relation to teeth. A pamphlet, comprised of extracts from the more important articles on this subject, has been published.

2. Further work has been done on the efficiency of dental cements, especially in regard to their germicidal properties and permeability. As well as carrying along the cements which had been used before and were for the most part copper cements, similar work has been done on alloys, silicate cement and gutta percha. A complete report on this work is now ready for publication.

3. Research on a method of classification of streptococcus viridans. This is in progress and is not near completion, but it is hoped that a preliminary report may be made on it in a short time.

4. A number of cultures and slides have been made and examined for dentists in practice.

(9) PUBLICATIONS.

FACULTY OF ARTS.

Department of Anthropology.

Windle, Sir Bertram—*The Romans in Britain.* (Methuen and Co.)

Department of Archæology.

Harcum, Miss C. G.—*The Art of Dining Two Thousand Years Ago.* (The Canadian Magazine, Vol. LXI, No. 1, May, 1923).

Department of Astronomy.

Chant, C. A.—*How the Einstein Theory Was Put to Test by World's Astronomers.* (The New York Herald, Sunday, April 15th, 1923.)

DEPARTMENT OF BIOLOGY.

Adamstone, F. B.—*Rates of Growth of the Blue and Yellow Pike Perch* (*Stizostedion vitreum*) *in Lake Erie.* (University Studies, Fisheries Research Series).

The Distribution and Economic Importance of Mollusca in Lake Nipigon. (University Studies, Fisheries Research Series).

Myxomycetes of the Lake Nipigon District. (Can. Field Nat., Vol. XXXVI, No. 7).

Adamstone, F. B., and Harkness, W. J. K.—*The Bottom Organisms of Lake Nipigon.* (University Studies, Fisheries Research Series).

Baillie, W. H. T.—*Case of Unilateral Absence of Kidney, Ureter and Distal Part of Uterine Tube in the Rabbit.* (Anatomical Record, Vol. 23, No. 7, July, 1922).

Bensley, B. A.—*A Musk-ox Skull from the Toronto Post-glacial.* (University of Toronto Studies).

Bigelow, N. K.—*The Plankton of Lake Nipigon and Environs.* (University Studies, Fisheries Research Series).

Clemens, W. A.—*The Limnology of Lake Nipigon.* (University Studies, Fisheries Research Series).

Clemens, W. A., Dymond, J. R., Bigelow, N. K., Adamstone, F. B., and Harkness, W. J. K.—*The Food of Lake Nipigon Fishes.* (University Studies, Fisheries Research Series).

Dymond, J. R.—*A Provisional List of the Fishes of Lake Nipigon.* (University of Toronto Studies). (Ontario Fisheries Research Laboratories, No. 12).

The European Hare in Ontario. (The Canadian Field-Naturalist, Vol. XXXVI).

Ford, Miss N.—*An Undescribed Planidium of Perilampus from Conocephalus* (*Hym*). (Canadian Entomologist, Vol. LIV, pp. 199-204, Fig. I).

Huntsman, A. G.—*Results of the Hudson Bay Expedition, 1920. IV. The Ascidiacea.* (Contrib. Canad. Biol. New Series, Vol. 1, pp. 27-38).

The Ascidian Family Cæsiridæ. (Trans. Royal Soc. Can., Ser. III, Vol. XVI, Sect. V, pp. 211-234).

The Quill Lakes of Saskatchewan and their Fishery Possibilities. (Contrib. Canad. Biol. N.S., Vol. 1, pp. 125-141).

Is Winter Mackerel Fishery Possible? (Canadian Fisherman, Vol. IX, No. 5, pp. 88-89, 101).

Ascidiacea. (Report of Canad. Arctic Exped., 1913-18, Vol. VI, pp. 1-16B).

MacArthur, Dr. J. W.—*Genetics in Fur-farming.* (Ont. Agr. College Review, March, 1923).

Walker, E. M.—*Some Cases of Cutaneous Myiasis, with Notes on the Larvæ of Wohlfahrtia Vigil* (*Walker*). Journal of Parasitology, Sept., 1922, Vol. 9, pp. 1-5, Pl. 1).

Notes on the Odonata of Godbout, Quebec. (Canad. Entom., Jan., 1923, Vol. LL, pp. 5-12).

DEPARTMENT OF BOTANY.

Faull, J. H.—*"Red Branch" of Balsam, Pine and Arbor Vitæ, and "Spike Branch" of Spruce.* (Report of the Department of Lands and Forests, Ontario, 1922).

Butt and Heart Rots of Balsam. (Report of the Department of Lands and Forests, Ontario, 1922).

Balsam Rusts. (Report of the Department of Lands and Forests, Ontario, 1922).

The Life History of Mildew. (Seventeenth Annual Report of the Horticultural Societies for Ontario, 1922).

Duff, G. H.—*The Development of the Geoglossaceæ.* (Botanical Gazette, LXXIV: 3, Nov., 1922).

The Occurrence and Frequency of Species of Ribes and Grossularia in Northern Ontario. (Report of the Department of Lands and Forests, Ontario, 1922).

Moss, E. H.—*Developmental Studies in the Genus Collybia.* (Trans. Roy. Can. Inst., Vol. XIV, Pt. 2, 1923).

Moss, E. H.—*Observations on Two Poplar Cankers in Ontario.* (Phytopathology, Vol. 12, 1922).

Simpson, A.—*The Poor Man's Orchid.* (The Canadian Florist, March, 1923).

DEPARTMENT OF CHEMISTRY.

McMullen, T. C.—*The Friedel and Crafts Reaction with Phthalic Anhydride.*

Martin, W. H.—*Light-scattering; Bibliography.* (Trans. Roy. Soc. Canada, 16, III, 276, 1922).

Martin, W. H., and Lehrman, S.—*Light-scattering in Liquids—Effect of Temperature.* (Journal of Physical Chemistry, 27, June, 1923).

DEPARTMENT OF FRENCH.

Cameron, J. H.—Editor of the original French text in the following: *The Works of Samuel de Champlain, in six volumes, reprinted, translated and annotated by six Canadian scholars under the general editorship of H. P. Biggar, Volume I (1599-1607). Translated and edited by H. H. Langton and W. F. Ganong, the French text collated by J. Home Cameron. (With separate portfolio of plates and maps) pp. xviii † 469.* (Toronto, The Champlain Society, 1922).

DEPARTMENT OF GERMAN.

Young, A. H.—*The War Memorial Volume of Trinity College.* In collaboration with Professor W. A. Kirkwood, M.A., Ph. D.

The War Book of Upper Canada College, Toronto, 1923.

DEPARTMENT OF GEOLOGY.

Coleman, A. P.—*Physiography and Glacial Geology of Gaspe Peninsula, Quebec.* (Geol. Surv., Canada, Mus. Bull. 34, 1922).

Glacial and Post-glacial Lakes in Ontario. (Univ. of Toronto Studies, Biological Series, No. 21, 1922).

Geology and the Nebular Theory. (Nature, No. 2746, Vol. 109. 1922).

Parks, W. A.—*Palæontology and Stratigraphy of the Toronto District, Part III.* (Assisted by Miss M. Fritz). (Ont. Dept. Mines, Vol. XXXII, 1923).

The Development of Stratigraphic Geology and Palæontology in Canada. (Presidential Address, Sect. IV, Royal Soc. Can., Vol. XVI, 1923).

Parasaurolophus Walkeri—A New Genus and Species of Trachodont Dinosaur. (Univ. Tor. Studies, Geol. Series No. 13, 1922).

The Royal Ontario Museum. (Museum's Journal, 1922).

Moore, E. S.—*Report on Meeting of Section "E," Am. Assoc. Ad. Sci., 1922.* (Science, Special Ed., Boston Meeting, A.A.A.S., 1922).

Discussion on the Coal Problem. (Can. Inst. Min. and Met., May Bulletin, 1923).

DEPARTMENT OF GREEK.

Hutton, M.—*National Nomenclature.*
Greece During the Great War (revised and rewritten)
The Fragments that Remain.
The Poetry of Gilbert—the English Aristophanes.
The Age Products of Democracy.
Conventions.
The Teaching of History. (N. C. of E.)
The Folly of the Wise.
St. George's Day.
The Conspiracies of Literature.

Robertson, J. C.—*Selections from Cicero: Passages from the Orations Adapted for Rapid Reading.*" (University of Toronto Press).

DEPARTMENT OF HISTORY.

Kennedy, W. P. M.—*The Constitution of Canada: an Introduction to Its Development and Law.* (Milford: Oxford University Press, 1923, pp. xxi, 520).

Social and Economic Conditions in the Dominion of Canada. (Ed. Concord: The Rumford Press, 1923, pp. v, 331).

Canada's National Status—A Last Word. (The North American Review, February, 1923).

The Imperial Embassy of 1553-54 and Wyatt's Rebellion, with an unpublished Bodleian Mss." (English Historical Review, April, 1923).

Select Bibliography of Social and Industrial Conditions in Canada. (The Annals of the American Academy of Political and Social Science, May, 1923).

The Problem of Sovereignty and the British Commonwealth. (The New Republic, June, 1923).

Wrong, H. H.—*The Government of the West Indies.* (The Clarendon Press.)

Wrong, G. M.—*The British Nation. A History, new and enlarged edition.* (Toronto, The Macmillan Co. of Canada, 1922, pp. XVI, 624).

Milner, W. S.—*Review of Franks' Economic History of Rome to the End of the Republic.* (Classical Philology, Jan., 1923, pp. 85-90).

Observations on the Teaching of History and Civics in the Primary and Secondary Schools of Canada. (National Council of Education, April, 1923).

Cochrane, C. N.—*Observations on the Teaching of History and Civics in the Primary and Secondary Schools of Canada.* (National Council of Education, April, 1923).

DEPARTMENT OF ITALIAN AND SPANISH.

Goggio, E.—*Dante Interests in XIX-Century America.* (The Philological Quarterly, Vol. I, No. 3, July, 1922).

DEPARTMENT OF LATIN.

DeWitt, N. W.—*Virgil's Biographia Litteraria.* (Oxford University Press).

DEPARTMENT OF MATHEMATICS.

Synge, J. L.—*Principal Directions in a Riemannian Space.* (Proceedings of the National Academy of Sciences, Vol. 8, No. 7, p. 198, July, 1922).

Principal Directions in the Einstein Solar Field. (Ibid, p. 204).

DEPARTMENT OF MINERALOGY.

Parsons, A. L.—*The Formation of Kaolin at Moderate Depths.* (American Mineralogist, Vol. VIII, 1923).

Walker, T. L.—*Schoepite, a New Uranium Mineral from Kasolo, Belgian Congo.* (American Mineralogist, Vol. VIII, p. 67).

The Development of Mineralogical Methods. (American Mineralogist, Vol. VIII, p. 41).

Huronite from Gowganda, Ontario. (University of Toronto Studies, Geological Series).

Trevorite, a Distinct Mineral Species. (University of Toronto Studies, Geological Series).

Walker, T. L., and Parsons, A. L.—*The North Mountain Basalt of Nova Scotia-Glaciation, Tubular Amygdaloid, Mordenite and Louisite.* (University of Toronto Studies, Geological Series).

Ellsworthite and Associated Minerals from Hybla, Ontario. (University of Toronto Studies, Geological Series).

Hatchettolite and Associated Minerals from Hybla, Ontario. (University of Toronto Studies, Geological Series).

Shattering of Minerals and Rocks about Inclusions. (University of Toronto Studies, Geological Series).

Notes on Canadian Minerals—Allanite, Axinite, Columbite and Sillimanite. (University of Toronto Studies, Geological Series).

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(10) REPORT OF THE LIBRARIAN)

(*W. S. Wallace, Esq., M.A., Associate Librarian*).

In the absence of the Librarian I beg to submit the following report on the University Library for the year ending June 30th, 1923.

The number of volumes added to the Library during the year has been 9,568, and the number of pamphlets 6,300, making a total of 187,426 bound volumes and 63,327 pamphlets in the Library.

Of the recent accessions to the Library, a great many of the most interesting and valuable have been secured through the efforts of the Librarian, who has been spending the year in Europe for the purpose of making book purchases. The result of his efforts has been a considerable enrichment of the resources of the Library in English literature, especially of the eighteenth century, in the literature relating to the French Revolution, in Italian literature, and in archæology, besides the filling of gaps in many other subject divisions of the Library.

The statistics of the use of the Library by undergraduates, in comparison with the two previous years, are as follows:

	1920-21	1921-22	1922-23
Number of day books	42,483	41,928	51,513
Number of books taken out for the night	17,321	18,998	20,508
Number of books taken out for the week	4,687	4,792	5,715

As the above figures indicate, there has been this year a large increase in the use of the Library by undergraduates. The increase in the figures has been due in part to the opening of the Library in the evening during the winter term. This experiment, which has been tried once or twice before with indifferent success, would seem at last to have justified itself. Although the numbers using the Library in the evening during January and February averaged only about fifteen, they increased as the examinations approached, and toward the end of April there were several evenings when more than seventy persons were counted in the reading rooms. The increase in the statistics for the use of the Library is not, however, wholly explained by the opening of the Library in the evening, since there was, during the autumn term, when the Library closed at 5.15 p.m., a twenty per cent. increase both in the attendance in the Library, and in the turn-over of books at the delivery desk. This increase suggests that the time is now come when the opening of the reserved book reading room in the basement of the Library is urgently necessary, and it is hoped that next year arrangements may be possible for opening this room, and thus relieving the present congestion both in the upstairs reading rooms and at the delivery desk.

The figures given above, it must be understood, do not include books loaned to members of the University staff or to graduates, since, owing to the fact that there is no time limit on these loans, statistics regarding them are almost impossible to obtain. It is interesting to notice, however, that the increase in the use of the Library by undergraduates is paralleled by a similar increase in the use by graduates. Whereas last year there were 426 names in the graduates' register, at present this number has been increased to 497, an increase of approximately seventeen per cent. Of the 600 odd "officers of instruction" listed in the *Directory of the University Staff and Students*, about 390 have pages in the professors' register, and borrow books from the University Library.

In addition to the service rendered to professors, graduates, and undergraduates of the University, the Library is being called upon more and more to serve the general public of the Province, and enquiries from outside sources are becoming increasingly numerous. If means could be found for the establishment of an extension department in the Library, it is clear that the Library could perform a direct service to the Province as a whole, which would strengthen the University in popular esteem.

An urgent requirement of the Library in the near future will be additional stack room. It is estimated that within two years the existing stack room will be filled, and in this event an extension of the University Library building will be necessary.

In conclusion, I should like to place on record my deep appreciation of the services of the Library staff during the past year. The task of administration has been greatly lightened by their loyal support. And it may not be out of place for me in this connection to express my sense of the inadequacy of the remuneration and recognition paid them by the University. It is not always remembered that workers in the University Library, and especially trained cataloguers and reference assistants, require a wide knowledge of languages and an almost encyclopædic range of subjects such as even many members of the teaching staff are not expected to possess. In the higher grades at least, their work is educational in the truest sense of the word; and it is to be hoped that the University will see its way to giving to at least the senior Library assistants an academic status such as has been given them in some American universities, together with the salaries and pensions which go with that status.

(11) REPORT OF THE DIRECTOR OF THE DEPARTMENT OF SOCIAL SERVICE.

(*Professor J. A. Dale, M.A.*).

The past session has been one of satisfactory progress from every point of view. In common with other schools of social work, this Department is facing a change full of interest and promise. Social work is developing fast, both in area and content. It represents a general method which is being more extensively employed, both in the kind of problems to which it is applied, and in the number of communities adopting it. At the same time it is utilizing a rapidly growing volume of knowledge. Both these conditions have the effect of enriching the course of training: but they make it a matter of constant study to preserve flexibility with balance and thoroughness. A good deal of work has been done this session on the consolidation of theory and practice. In this, our growing experience has been aided by the raising of entrance qualifications. It has become clear to us as to other training schools, that a satisfactory course can no longer be planned for less than two years. This necessary change is now, after two years of transition, complete; next session no certificate will be granted on a course of one year.

A training school is dependent on the social work of the community for its instructors in practical subjects, and still more for its field work. At the same time, its presence makes possible a secure advance in policies and practice. We are in the happy position of having our graduates, among others, giving skilled service both to the clients of their agencies, and to the students; to the advantage of all three classes. This interpretation is illustrated in various stages: it is seen in its most developed form in family case work. The field of probation in connection with the courts is opening up: advantage has already been taken of this opportunity, and closer co-operation is in prospect. Other fields which await development of the same kind are child-placing, and community organization: and in these also we hope that the local situation will allow us to make a beginning.

Thus the work of the Department is doubly bound up with, and vitally related to, the work of the social agencies. Their generous co-operation is an essential factor in working out the right relationship of a training school to its professional field. I cannot speak too highly of the services of Miss McGregor in this regard, keeping as she does so sympathetic and skilful a touch with agencies and students alike. The officers of the Department serve on many committees by which the policies of the agencies are shaped, and give much time to consultation. In addition, the Director has given a large number of addresses on various phases of social work. Lecture courses have been given at Hamilton and Kitchener, and one is to be given in July at the Church of England Summer School at Port Hope. The service of the library, which now contains some 2,000 volumes, has grown in value under the careful oversight of Miss Anderson.

The Department has been actively interested in the starting of a Social Workers' Club, designed to promote intercourse between workers in the different fields, for all purposes of comradeship. Although the Club has only been in existence a few weeks, it numbers over 100 members with good prospects of permanent success. The foundation of the Club is timely, not only on account of the growing sense of solidarity among social workers, but also because next year will see the meeting in Toronto of the great American Conference of Social Work, which has not met in Canada since 1897.

Of the 114 graduates known to be employed in social work at the moment of writing, 75 are employed in the city of Toronto; 15 in Ontario (including very important posts at Ottawa and Hamilton); 3 in Montreal; 1 in Halifax; 7 in British Columbia. There are besides 7 working in the States; 2 in China; 1 in South Africa; 1 in India, and 2 in London (one in immigration service of the Canadian Government). It is hardly possible to summarize the kind of work done by these graduates. A large proportion of them are case workers for various types of institutions; a considerable number are workers for various types of institutions; a considerable number are workers in settlements and in clubs; but short of a complete list it is difficult to give any idea of the variety of service rendered by the graduates of the department.

(12) REPORT OF THE DIRECTOR OF THE DEPARTMENT OF PUBLIC HEALTH NURSING.

(*Miss E. K. Russell, B.A.*)

In my report of June, 1923, I would briefly summarize the work of the three years in which the Department has been on probation.

For a new department, the enrolment has been very large, as during the three years we have received one hundred and thirty-nine students. In addition, many applicants have been refused because they were unable to meet the entrance standard.

It has been comparatively easy to organize an extraordinarily good training course for the public health nurse. Taking everything into consideration, perhaps no city on the continent offers better opportunity for such. The keen interest and sustained enthusiasm of the students are further evidence of the fact that the Department is meeting a deeply felt need.

The majority of the graduates have immediately found public health posts awaiting them; a large number of the posts are with governmental departments, while an interesting minority are with voluntary organizations. At this date of writing, one month after the graduation of the third class, there are more positions being offered than we can fill. To help meet the needs in this new field of Preventive Medicine and make wise adjustments for the work and the worker, the University must be prepared to allow generously from the time of the staff of this Department for what might be considered the duties of an employment service. It is impossible for us to shirk this responsibility in connection with our graduates, and it is a demand that is made upon us continuously throughout the year.

We gratefully acknowledge three years of generous financial help and thoughtful friendship from the president and staff of the Ontario Red Cross Society.

Extension Work. The first Extension work undertaken by the Department has just been completed. Two courses were conducted: (1) A three weeks' refresher course for public health nurses who have had previous training or experience. Eighteen nurses from widely distant points in the Province enrolled. (2) A two weeks' course for hospital teachers and supervisors. Sixty-two nurses from Toronto and several other towns in Ontario enrolled. The students showed keen interest throughout both courses and expressed a very deep appreciation of the work given. The two weeks' conference provided for hospital teachers was the first of its kind offered in Ontario, and we think the eager response to this opportunity should give us food for thought.

Voluntary Assistance given to the University Department. We must emphasize the very great amount of assistance which we are forced to ask from the public health workers and hospital administrators of Toronto, for much of which assistance we can give no remuneration. To organize, coordinate, and supervise the teaching given by this large group of voluntary assistants must necessarily be a heavy piece of work, but our students must have this laboratory work if this course is to be of value to them. Possibly we should seek some method by which this department could offer remuneration to those who give so freely of their time for the training of its students. At least we must emphasize this point, that we are at present accepting a very great deal of help.

(13) REPORT OF THE DIRECTOR OF UNIVERSITY EXTENSION AND PUBLICITY.

(*W. J. Dunlop, Esq., B.A.*)

It is a pleasure to be able to say that the work of this Department continues to expand. Three years of service to the people of Ontario have now been completed and those who have been served appear to be very cordial in their appreciation of what has been attempted for them. Two thousand one hundred and seventy-seven adult students have been enrolled in the various courses. Thousands of others, of whom no enumeration could be made, have attended free public lectures and extension lectures arranged for their benefit in all parts of the Province.

UNIVERSITY PUBLICITY.

With the co-operation of Mr. Angus MacMurchy, K.C., President of the Alumni Federation, a bulletin entitled "Commencement, 1922," was published in August and ten thousand copies were distributed to a selected mailing list. This publication was exceedingly well received because it was filled with interesting University news. Plans are already under way for twenty thousand copies of a similar bulletin, "Commencement, 1923," which is to be sent to every living graduate of the University and to any other persons who may wish to have a copy.

An up-to-date addressing machine has been installed in the University Press and stencil address cards have been prepared, bearing the names and addresses of all graduates, so that literature may be sent to them as often as funds will permit. In this way it is hoped that a connection between the University and its own graduates may be maintained throughout the years. The Registrar has co-operated in the work of preparing this addressing system and will be able to make use of it in various phases of his own work. The addressing machine will, of course, be available for the use of any Faculty or Department in the University. In my opinion, the installation of this system means a very decided advance in our scheme of University publicity.

Ten thousand copies of the President's address at the opening of the Session and ten thousand copies of the Memorandum of the Board of Governors with regard to the medical reorganization were printed and distributed. Six thousand copies of a descriptive bulletin on the Royal Ontario Museum of Zoology and five thousand on the Royal Ontario Museum of Archæology, prepared by Professors Bensley and Currelly, were also printed and distributed. Various circulars and folders, and descriptive literature regarding courses and classes, were issued from time to time. Publicity material is going out almost continuously.

I addressed meetings of teachers, workingmen, the general public, and the alumni in different parts of Ontario and once in Montreal. There is a remarkable interest in extension work and many organizations wish to be informed regarding the details of it.

This Department has co-operated with the Faculty of Medicine in distributing the quarterly *Medical Bulletin* and in sending news to papers in Western Canada.

To the daily papers of Toronto and to the Canadian Press news items regarding the University have been supplied almost daily during the twelve months.

Articles have been supplied to the *University of Toronto Monthly* and I have attended regularly the meetings of the Alumni Federation's Committees on publicity, on publication, and on appointments. It has been a great pleasure to co-operate with the Alumni Federation in promoting the welfare of the University.

The University's advertising has been placed as usual. This increases yearly in volume and includes series of lectures, single lectures, conferences, courses, classes, organ recitals, telescope service, and the Royal Ontario Museum.

The University's exhibit at the Canadian National Exhibition was arranged for the second time and seemed to surpass in interest the first venture. This exhibit appears to be very much worth while and attracts thousands of people. To answer the varied questions asked is in itself a formidable task.

The bulletin boards recently erected at the entrances to the University grounds have already served a useful purpose and should be of great value during the autumn and winter.

The publicity work grows largely in volume each year and new media are continually presenting themselves.

University Extension.

At the end of this academic year there are 228 teachers in the Second, Third and Fourth Years of the Teachers' Course and during the year 556 teachers took correspondence work or classes. The Summer Session grows steadily though not rapidly. The Teachers' Classes held in Toronto and Hamilton show a vigorous growth. Correspondence Courses in Upper School, Middle School, and commercial subjects were taken by more than twice as many teachers as in any previous year. Fifteen teachers received the B.A. degree at the June convocation. The extension work for teachers is in every respect most encouraging and promises immense development.

Extension lectures in different localities in the Province are increasingly popular. Members of the University staff give freely of their time and energy to serve in this way the cities, towns and villages of Ontario. One hundred and thirty-eight of these extension lectures were delivered in the year now closed.

The Workers' Educational Association more than tripled its membership in Toronto largely because of the excellent work and the unflagging energy of Mr. Alfred Macgowan, the Secretary-Treasurer. There were seven classes held weekly in the Social Service building, one in Scarborough Bluffs, one in a school in the township just north of Danforth Avenue, one in Frankland Public School, one in Fairbank, one in New Toronto, three in Hamilton, three in Ottawa, and one each in Brantford, Paris and Galt. Twenty-one classes there were in all, with a membership of 926. The subjects studied were Economics, Psychology, English Literature and Rhetoric, Public Speaking, Social Evolution and History.

Rural tutorial classes were conducted in Brampton, Cooksville, Beeton and Oneida Township. Literature and community singing were the subjects of instruction. The Oneida class was the largest, with an average of 45 for community singing and 60 for English Literature.

Urban tutorial classes in English, in Journalism, and in Italian were conducted at the University and were largely attended. A second class in English was carried on in Runnymede Public School, Toronto. These classes are always attended by thoughtful and appreciative people.

A new departure was a two weeks' extension course in export trade arranged in co-operation with the Director of the Commercial Intelligence Service, Ottawa. Seventy-five men and two women attended. A similar course is already being planned for next January.

The second annual extension course in Journalism had an attendance of ninety-eight. The instruction was of the same general type as in the previous year. The extension course for Farmers, with an attendance of eighty-four, and the extension course in Civics and Town-Planning, with twenty-one, were each considerably smaller than in previous years.

With the co-operation of the Department of Household Science and under the direction of Miss Laird, a course of lectures on "Diet and Health" was given. There were two afternoon lectures per week during October, November and December.

The telescope service commenced last year was carried on and continues to interest a great many people.

In co-operation with the Department of Public Health Nursing a three weeks' extension course for Public Health Nurses and a two weeks' extension course for Hospital Nurses were conducted in June. These were in every respect successful and an extension course for Private Duty Nurses is being planned for the coming August.

An immense volume of correspondence has been carried on with people, mostly teachers, who desire advice as to the best means of securing more education. Vocational guidance for adults may be considered an integral part of University extension work; in any case, it seems to be in wonderful demand. In every instance no effort is spared by the Extension Office to secure for the enquirer whatever information may be necessary and to advise every applicant with the most scrupulous care. Prompt and cordial replies are without exception supplied; curt answers, either orally or in writing, are banned. It may be that in the large correspondence which this information service involves the Department of University Extension is performing an important function for the University's constituency.

(14) REPORT OF THE DIRECTOR OF DEPARTMENT OF MILITARY STUDIES.

(*Colonel W. R. Lang*).

As requested, I have the honour to report as follows on this Department for the Session 1922-23.

1. The number of Honours and Pass Arts students enrolled in the three courses was fifty-eight, distributed as follows:

Juniors	32 (less one withdrawn at Christmas)
Intermediates	16 (including 1 student of Dentistry)
Seniors	10
	58

In addition to these courses a special one comprising the work of the Third Year had to be given to meet the demands of students who could not attend at the usual hours; there were twenty-three students in this class, making a total of eighty-one taking lectures in Military Studies.

Besides these, 156 took practical instruction in the C.O.T.C.

2. In March, 1922, eighteen candidates successfully passed the War Office examination qualifying them as lieutenants in H.M.'s Auxiliary Forces (Infantry).

In March, 1923, three students of the Fourth Year successfully passed the practical portion of their examination for the Higher Certificates and wrote on the War Office papers; at the same time thirty-four students of the Third Year passed the practical portion of the examination for Certificate "A" and wrote on the papers. The results of these examinations are not yet known.

3. The establishment of the C.O.T.C. has been increased so as to admit of medical students of the senior years forming a company by themselves and receiving instruction in the duties of Army Medical Officers. This course will commence next session and time for it has been allowed in the time-table of the Medical Faculty.

4. Brig.-General G. S. Cartwright, C.B., C.M.G., Retired List R.E., was re-appointed special lecturer (without expense to University funds), and his services have been of great assistance to the department.

(15) REPORT OF THE UNIVERSITY HEALTH SERVICES.

(*Dr. George D. Porter, Director*).

I. Men Students.

The University Health Service, which aims at the promotion of health and physical fitness among the students, has now been in operation for two years and the results of the work may be shown as follows: (Dr. Edith Gordon's work among the women students is embodied in a separate report.)

As physical training is now compulsory, it is necessary that the student shall first receive a physical examination which will properly classify him for the work, so that he may take the form and amount of exercise best suited for his needs.

Examinations: For this purpose a staff of physicians chosen by the Professor of Medicine have examined the students of the first two years, and the athletic teams, 2,193 in all. 726 men were examined twice. The Professor of Pathological Chemistry had the urinalysis (a very important part of the examination) made for a large number by the medical students in his laboratory under his supervision, and he also did a large number of them himself:

A staff of specialists are also re-examining those referred to them for this purpose (360 re-examinations).

Results: The results of these examinations are most gratifying as regards the general standard of our students, as it has been found that ninety-eight per cent. of them are able to take physical training. We find that there are:

Physically fit and able to take all gymnasium work	93%
Men with some disability requiring supervised exercise	5%
Physically unfit (some temporarily and a few permanently and exempt from all gymnasium work)	2%

Classification:

A-1. Students who are physically fit. May take heavy exercise and athletics.

A-2. Physically fit. But, owing to light weight, under-development, etc., may take light exercise, but should be instructed what games to play.

B-1. Students with some defect remediable or otherwise. Must take light exercises and remedial gymnastics.
B-2. Students with some disability. Temporarily unfit for any exercise. To report later.
C. Students with some disability not remediable. Exempt from all gymnasium work.

RESULTS:

1921			1922	
Men examined	1,450		Men examined	1,470
A men, 1,285	88%	Physically fit	A men, 1,374	93%
B men, 125	9%	Supervised Physical Training	B men, 70	5%
C men, 40	3%	No Physical Training	C men, 26	2%

Of the 206 men re-examined this year who were below A-1 last year 127 men (about sixty-one per cent.) have been raised in their physical standing. Improvements due to:

1.	General health, weight, etc.		49
2.	Improvements shown by urinalysis		28
3.	Heart conditions improved		18
4.	Chest conditions improved		5
5.	Feet improved		4
6.	Eyesight improved		1
7.	Recovered from illness		4
8.	Scoliosis		1
9.	Operations		18
	Appendix	2	
	Hernias	3	
	Tonsils	5	
	Nose	2	
	Mastoid	1	
	Hammer Toes	2	
	Root Abscess	3	
10.	Partial Paralysis		1

(Thirty-nine of these men, who were taking supervised exercises last year, are now physically fit, seventeen of these men who were unable to take any P.T. last year, are now taking it.) Of the 640 men re-examined this year who were able to take P.T. last year, twenty-six men (about four per cent.) have been lowered in their physical standing, due to illness or lack of condition generally.

Bronchitis	8
Kidney trouble	5
Diphtheria	1
Loss of weight	2
Indigestion	1
Eyesight	1
Phlebitis	1
Painful arches	1
Goitre	2
Tonsils	2
Heart condition	2
Total	26

While some of this improvement is due to the general environment and healthy conditions of student life, it is evident that some of it is also due directly to the medical advice and care of the Health Service.

VENEREAL DISEASES: It is pleasing to note that no case of syphilis has been found in our examinations of the first three years of the student body. As for other venereal diseases (gonorrhoea), while doubtless here and there cases have occurred, no evidence of this disease has appeared during our examinations; and when it is realized that the examinations are compulsory, that everyone comes up stripped before us, and that these examinations are all completed in a period of four or five weeks' time, it is evident that we have a remarkable freedom from venereal diseases in our University.

ATHLETICS: We have examined all the athletic teams, track teams and athletes, and in a few cases have prevented students from taking part in athletics and games and gymnasium owing to weak hearts or other conditions making their participation harmful. We have also kept a number with some infection from the swimming pool.

ADVICE: While assuming no responsibility for treatment of those who are ill, we give advice to a large number, and make it our duty to urge proper medical care when needed. A large number of minor injuries, received in the gymnasium or on the campus, have been attended to during the year.

LECTURES: Last year one lecture on personal health was given to the first and second year students in all different faculties.

The co-operation of the men from the different faculties, the students and the Athletic Directorate in the initial work of the University Health Service has been most encouraging.

ILLNESS: Among those able to take physical training last year eighty-five men in the first and second years had exemptions owing to illness from two weeks' duration or over to a whole term, averaging forty days each. (Last year sixty-five men in the Medical Faculty alone made application for exemptions from attendance at classes on account of illness of one week or over.) Based on time lost by these eighty-five men it means an average of two days' loss for each student, and as there were also, without including Dental students, 838 exemptions for shorter periods than one week, the total sickness loss time must amount to a college week per student. This year it will be more, owing to the influenza epidemic.

It is shown also that there are many defects among the students, the great majority of which cannot be corrected by gymnasium work, but require medical treatment. Students with such defects should have advice pointing out where necessary the desirability of proper treatment. The following may be mentioned as examples:

17	Serious Heart Lesions.
6	Cases of Tuberculosis.
31	Hernias.
8	Hyperthroidism.
17	Nephritis.

It is clearly recognized that advice only and not treatment by the Health Service is suggested. Certain physical conditions as shown in the Medical Report are known to the students themselves, and are of such a character that they may cause considerable worry and anxiety. A talk with a medical advisor removes such apprehensions and saves these men from seeking the advice of quacks. As an example, there are 275 cases of varicocele which frequently fall under this heading.

Six hundred and forty-three students showed errors of refraction; many of these were unaware of the condition, and these were advised to seek the advice of an eye specialist. These facts show the importance of medical examination and advice. There are also daily emergencies requiring attention.

Infections are also controlled by proper inspection, and the student body is thus protected.

Graduates of the University become leaders in their community and yet they leave the University at present with no knowledge of health matters whatsoever. The Health Service should be responsible for lectures in health, and spreading such information by private advice at the time of physical examination and when the students come in for exemptions.

In spite of the good showing of our students there are defects of which many are of but little importance, but a large number of them are serious disabilities. That many of them are remediable is one of the reasons for a University Health Service, and as some of the students were, until physically examined, unaware of these defects, their early recognition is of the greatest importance. On the other hand students frequently worry over imaginary ills or fear serious consequences from some slight complaint upon which a little advice and reassurance are of the greatest benefit.

REPORT OF MEDICAL ADVISER OF WOMEN.

(*Dr. Edith Gordon, Medical Adviser*).

II. Women Students.

I beg to submit for your approval the report of the Medical Adviser of Women for the year 1922-1923.

There have been 672 physical examinations made. Of these 292 were compulsory. These were the first year students of University College and the Faculty of Medicine, the students of the College of Education taking the physical training option, and students of the Royal College of Dental Surgeons. The remaining 380 examinations represent all Faculties and Colleges of the University and were voluntary on the part of the students. Among these voluntary examinations were 140 who had been examined last year and were anxious to know of any change in their physical condition during the year. I have tabulated these according to improvement or otherwise.

There have been sixty-nine re-examinations throughout the year. These have been made upon students who were taking the corrective classes in the gymnasium, and upon the students who were exempted from the physical training requirement. In this way I have been able to keep in touch with some of the students who are in greatest need of medical supervision.

There have been 588 consultations. The students in increasing numbers have availed themselves of the consultation hours of the Medical Adviser and have brought their various health problems to her for solution. It has been gratifying to note the response on the part of the women to the advice so given, and the benefit derived from it in several instances.

There was a great deal of illness among the women students throughout the winter. The influenza epidemic would account for the increased amount. Fortunately it was not of a serious character, in most instances.

In so far as was possible, an examination of each student who had been ill with influenza was made before allowing her to return to the physical training classes. Thus an endeavour was made to safeguard the students from the after effects of the disease. Reports of illness among the women students were made to the medical office by the heads of residences, and in some cases by the parents of the students. A great deal of illness, however, was unreported, and only came to the notice of the Medical Adviser after the illness was past. I am most anxious that all illness among the women students should be reported to the medical office at the time of the illness. The extent and seriousness of any illness could then be determined, and the well students safeguarded. A considerable number of letters, explaining the physical conditions of various women students, were written to the registrars and professors of their different colleges, to account for the absence from classes, and in some cases, examinations. The files of the Medical Adviser are available for the use of the registrars or professors desiring information regarding any woman student.

Through the courtesy of Dr. C. C. Benson, laboratory space and equipment were given in her laboratories for the use of the Medical Adviser. This made possible the performing of some simple laboratory tests that were deemed necessary to complete the diagnosis in certain examinations.

Six lectures in Personal Hygiene were given to the students in the Department of Public Health Nursing. Through the courtesy of Miss Coventry, one of the compulsory Physical Training periods for the first year women of University College was given over to a lecture on Personal Hygiene by Dr. George Porter. The lecture was open to all women of University College and was well attended, and great interest was shown. It is the hope of the Medical Adviser that five or six lectures on Personal Hygiene may be given each year to all women students of the first year.

The need for more residences for women students has again been emphasized through the reports of several students regarding the conditions under which they were living in rooming houses. The problem of caring for the students who are ill in rooming houses is a serious one. A few rooms in the University College Women's Union are available for infirmary purposes, and have been used a great deal. This applies particularly for the students in residence. Further accommodation should be provided in order that all women who are ill may receive proper care and attention. The most outstanding need for the women is adequate gymnasium accommodation. Smaller rooms with proper equipment are necessary for the proper carrying on of the corrective and remedial classes; a large room for basketball and indoor baseball practices is needed; and larger and more sanitary locker and dressing rooms are required. Miss Coventry, in spite of great difficulties, has carried through a splendid programme of Physical Training with the first year women and others, but it is hoped that she will not long have to work under such a handicap. In planning for the new women's gymnasium it is hoped that due consideration will be made for the need of sufficient grounds near the building to allow for tennis courts, outdoor basketball, a ground hockey field, and in winter a hockey cushion.

PHYSICAL EXAMINATIONS OF WOMEN STUDENTS OF THE UNIVERSITY OF TORONTO FOR THE YEAR 1922-1923.

University College:		
First year	169	
Other years	130	
Total		299
Victoria College		54
Trinity College		37
St. Michael's College		61

Faculty of Medicine:		
First year	14	
Other years	29	
Total		43
College of Education		97
Faculty of Music		1
Faculty of Applied Science		1
Department of Public Health Nursing		33
Department of Social Service		4
Royal College of Dental Surgeons		12
Occasional and Graduate		18
Grand total		672

REPORT ON 672 WOMEN STUDENTS OF THE UNIVERSITY OF TORONTO EXAMINED DURING THE YEAR 1922-1923.

Students physically able to take Physical Training:	
University College	75.2%
All Students	83.3%
Students requiring supervised or corrective exercise:	
University College	20.7%
All Students	15.5%
Students unable to take Physical Training (temporarily or permanently):	
University College	4.1%
All Students	4.2%
Preventable and Correctable Defects (poor nutrition, underweight, overweight, weak feet, functional spinal curvature, constipation, etc.). These could be corrected by remedial exercises and proper personal hygiene:	
University College	70.5%
All Students	69.9%
Defects that could be corrected by treatment, operation, etc. (diseased tonsils, eye defects, diseased teeth, etc.):	
University College	20 %
All Students	21.9%
Defects that are uncorrectable but that could be prevented from becoming more marked or developing into acute conditions (organic heart lesions, organic spinal curvature, chest conditions, etc.):	
University College	9.5%
All Students	8.2%

III. REPORT ON ATHLETICS AND PHYSICAL TRAINING.

(*Mr. T. A. Reed, Secretary, Athletic Association*).

(*a*) PHYSICAL TRAINING: The work for the academic year 1922-23 shows a distinct advance over that of any previous year, the Compulsory Physical Training in the First and Second Years working more smoothly and with a higher record of attendance.

Twelve hundred students were enrolled in the Gymnasium Classes, and during the session 564 classes were held, the Gymnasium instruction being given by Mr. D. M. Barton, Chief Instructor, and Mr. W. A. Martin, both experienced men.

The Swimming activities were again under the control of Mr. W. W. Winterburn. There were held 217 "Learn to Swim" classes and 163 students were taught how to swim. One hundred and ninety-five Life Saving Classes were held, and 168 students passed the necessary examination for the Royal Life Saving Society. Of these students, 22 attained such high standing that they were competent to assist the instructor in the Swimming and Life Saving Classes.

(*b*) Intercollegiate Athletics: While the Session of 1922-23 was not as productive of as many championships as in the immediately preceding years, nevertheless it can be considered a very satisfactory one in University athletics, the teams representing the University in the various branches of sport measuring up to the high traditions of sportsmanship that have always prevailed.

The University of Toronto won the Hockey Senior and Intermediate Championships, the Swimming and the Harrier, the Senior Rugby going to Queen's University, and the Boxing, Basketball, Track, Tennis and Water Polo and Gymnasium Competition going to McGill.

(*c*) Interfaculty Athletics: A larger number of students participated in the various competitions for Interfaculty Cups, there being over 300 players engaged in the Mulock Cup (Rugby competition), over 180 in the Hockey, 205 in the Basketball and 150 in Indoor Baseball, 47 in the Gymnasium Classes and over 400 students being trained in the elementary instruction in Boxing, Fencing and Wrestling. In Water Polo and Swimming there were 210 men enrolled, and in the Track sports there was a larger number of competitors than in any previous year.

It might be pointed out in passing that this year the experiment was tried of accepting for the requirements in Physical Training, participation in University and Interfaculty sports, the attendance being reported to this office weekly by the managers of the respective teams. This, of course, was only effective during the session that the respective sports were in progress, the students taking up the Gymnasium Classes again as the competitions were closed, and in its results proved very satisfactory.

It is the sad duty to report the untimely death of William Langford Rowell, a student in the Third Year Arts, who was one of the University's outstanding athletes. As a tribute to his worth his fellow students had elected him Captain of the Track Team for the next year, and at the Track Meet held in Montreal last autumn he practically equalled the Intercollegiate record in the 120 yard race. In addition to this he was a valued member of the Senior University Hockey Team, and in all sports connected with the University and with his own College, Victoria, he was a leader among men.

IV. DEPARTMENT OF PHYSICAL EDUCATION FOR WOMEN.

(*Miss I. Coventry*).

I beg to submit the report of the Directress of Physical Education for Women Students for the year 1922-1923.

Compulsory Physical Training Classes were composed of the First Year Women Students of University College, the Faculty of Medicine, the College of Education taking the Physical Training option, and the Royal College of Dental Surgeons. Voluntary students were from University College, Victoria College, Trinity College and St. Michael's College.

The Compulsory Physical Training Class composed of First Year Women students of University College, numbering one hundred and fifty, had to be subdivided into four classes on account of the limited floor space in the small gymnasium. Even this arrangement was not a satisfactory one, as the numbers could not be equally divided. There were one hundred and seventeen students in one class and thirty-three in another. Each class had two periods per week.

Seven special class periods in corrective and remedial exercises were arranged to accommodate women students required to take this work. These classes, composed of ten or twelve women students requiring individual attention, should be conducted in smaller rooms equipped with the necessary apparatus, thus freeing the gymnasium, which is needed for larger athletic classes.

It was impossible to arrange for the forty-two students who enrolled in the First Year of the Diploma Course in Physical Training for the same reason, *i.e.*, lack of accommodation. It is expected that the enthusiasm and interest shown in this course will be continued next year.

To meet the many appeals of the students and athletic team clubs for organized games, it was necessary to arrange several special periods at hours not convenient to the students. The attached time-table contains a summary of the occupied periods in the gymnasium and swimming pool.

The above statements make clear the pressing needs for larger and more suitable equipment for carrying on the work of the Department. It is to be hoped that the women's new gymnasium will become a reality in the near future.

It has been of great help and benefit to my work to have the advice, help and co-operation of Dr. Edith Gordon. Her keen interest in the promotion of the health and welfare of those students who were advised to attend the corrective and remedial classes, I truly appreciate.

It would have been impossible to conduct the numerous classes successfully without the capable assistance of Miss Mildred Sherrin.

The encouraging results following the skilful and tactful manner in which Mr. Cochrane conducted the swimming classes were evident, for even the most timid were inspired with confidence.

(16) REPORT OF THE WARDEN OF HART HOUSE.

(*J. B. Bickersteth, Esq., M.C., M.A.*).

The use made of Hart House by all members of the University, Undergraduate, Graduate and Faculty, increases with each succeeding year. During the past winter there has hardly been a day that every part of the House has not been in demand. A mere list of the societies, clubs and University organizations of every description which have met in Hart House throughout the period under review would cover several pages. More important than this, however, is the fact that individual students of all Faculties, Colleges and Years have daily used the House in increased numbers, and thus Hart House is fulfilling its chief function of providing a meeting place for students of all types and interests. To a greater extent than ever before, the Committees of Hart House have included men of every Faculty, and these men have invariably worked for the welfare of the University as a whole.

The House Committee. The House Committee, meeting every two weeks, has given careful consideration to many problems of administration. The hospitality of the House was extended to the delegates of the National

Student Conference, in connection with which a reception for 1,500 people was held, all parts of the House being utilized. Early in December seventeen of the most important Universities of the United States of America each sent a representative to a meeting of the Association of University and College Unions held in Hart House. Every department of the House was shown to these visitors during their three days' visit, and the universal opinion expressed was that Hart House is unique both in its architecture and the variety of activities it fosters under one roof. The privileges of the House were also extended to the American Society of Experimental Biology and to those attending the Extension Course in Export Trade, the Short Course for Farmers, and the Short Course in Civics and Town Planning. In April hospitality was offered to the men delegates of the Conference on Education and Citizenship. On Convocation Day; the House, as in former years, was thrown open for various Class Reunions.

During the winter the usual dances were held. The House Committee again managed the Masquerade, at which some 1,600 students in fancy dress were present. Double tickets were sold at $1.50 each, and with the profit a picture was purchased for the house.

An innovation this year was the so-called "Faculty Night." The idea originated with the Faculty of Applied Science and Engineering. On a certain night the whole House, including the Theatre, was handed over to this Faculty, every member of which was present with a friend. During the early part of the evening, side-shows and burlesques were put on in various parts of the House, and exhibitions of athletics and swimming took place in the gymnasia and swimming pool. A light supper was served, and about 11 p.m., dancing commenced in the Gymnasia and the Great Hall. The expense incurred by the individual student, which did not exceed twenty-five cents, made it possible for every one to be present, and the whole function was an unqualified success. Later in the year a "Faculty Night" was given by the students of the Royal College of Dental Surgeons.

During the winter several addresses were delivered in the Lecture Room at midday, among the speakers being Mr. Meighen, Mr. Philip Kerr and Dr. V. Stefannson. The number of people from all parts of the world who have visited Hart House during the past twelve months has been very remarkable.

A valuable gift in the shape of a statue of Hermes was presented to the House by Mr. George W. Booth, of Messrs. Borgfeldt & Company, and a sundial of great historical interest was presented by Dr. Alfred Baker. Both these gifts have been placed in the Quadrangle. Two large pictures of the City of Quebec were presented by M. Cyrille Delage, Superintendent of Education in the Province of Quebec.

THE HALL COMMITTEE. Much time and thought has been given by this Committee throughout the year to the affairs of the Great Hall. In addition to the serving of meals at the ordinary rates, a cheaper lunch at twenty cents was provided, which proved extremely popular, and the number of men using the Great Hall for their meals has been very satisfactory.

THE LIBRARY COMMITTEE. A considerable number of new books of wide and general interest have been added, and owing to the careful management and the supervision of the Curator, fewer books have disappeared from the shelves. No part of the House has been more used, and it has been necessary to provide further seating accommodation.

THE MUSIC COMMITTEE. An interesting development in the musical activities of the House has been the inauguration of a series of Sunday evening concerts in the Great Hall. These concerts have been held between 9 and 10 p.m., about every third Sunday evening, and among the leading musicians of the city who have given their services, as friends, are Mr. Campbell McInnes, Mr. Carlos Buhler, Mr. Paul Wells, Mr. F. Fillion, Mr. Leo Smith, Mr.Von. Kunits, Mr. F. S. Welsman, Mr. Arthur Friedheim and Mr. Alberto Guerrero. The demand for tickets, of which five hundred were issued to members of Hart House free, was enormous, and on every occasion the Great Hall has been completely filled with undergraduates and their friends. During fall term-time, recitals were held in the Music Room every Friday afternoon at 5 p.m., when professional musicians of Toronto again lent their services. Throughout the year attendance at these recitals has been very large.

THE BILLIARD COMMITTEE. A new English billiard table was purchased and several successful undergraduate tournaments have been held. There has been steady improvement in the general conduct of those members using the Room.

THE SKETCH COMMITTEE. The past year has been the most successful in the history of the Sketch Club. An exhibition of pictures has been held each month and a lecture has been given every two weeks. There have been exhibitions of Cézanne drawings, Rubens drawings, paintings by Professor C. W. Jefferys, Japanese prints and paintings by Dr. A. P. Coleman. Lectures were given by Mr. Arthur Lismer, Mr. H. Stansfield, Mr. F. Haines, Mr. P. M. Turner (of the Independent Gallery, London), Professor C. W. Jefferys, Sir Edmund Walker, Dr. Coleman, and Sir Michael Sadler. The co-operation of the Ontario College of Art has done much to make the work of the Sketch Club a success. Throughout the winter a loan exhibition of pictures by Toronto artists has been hung on the walls of Hart House. The Sketch Club also organized the arrangements by which the Graduating Year of 1923 presented a picture to Hart House. A number of valuable copies of the *Burlington Magazine* were presented to the Club by Mrs. Gerrans, of Oxford. Some Cézanne drawings were presented by Capt. D. E. Wallace, M.C. (2nd Life Guards), and a series of Rubens drawings were presented by Mr. P. M. Turner. Mr. F. M. Kimbark gave the Club an interesting collection of prints.

CAMERA CLUB COMMITTEE. Under the guidance of Mr. K. B. Jackson, the interest shown in the activities of this Club has greatly increased. The membership has grown, exhibitions have been held, and the dark rooms—now adequately equipped—have been in constant use.

THE SQUASH CLUB COMMITTEE. The number of men playing Squash Racquets during the past year has greatly increased. Mr. A. F. Coventry has given much time and thought to the development of the game, and during the summer various improvements are being made to the courts.

THE GRADUATE COMMITTEE. Great efforts have been made to draw graduates of the University into the activities of the House, and the graduate members of Hart House have increased in number. A monthly dinner has been held, followed in each instance by a programme of varied interest, and the attendance at these dinners has been good. A graduate inter-faculty baseball league was started and the cup, which was presented by Mr. G. P. Meadows for graduate athletics, was won by the graduates of University College. Many graduate clubs, such as the Diggers, Critics, the Ruskin, and the Young Lawyers' Club, met regularly at Hart House during the winter. Much greater use has been made of the Graduate Dining Room than in former years.

RELIGIOUS ACTIVITIES. An informal Committee met during the earlier part of the year to discuss the best means of bringing the Chapel more into the life of Hart House. Informal services were held there at 1.30 p.m. on certain days, and at midday individual students made use of the Chapel for private prayer. As a result of the National Student conference in December, and of the visit of Dr. Herbert Gray in February, definite steps were taken this spring to reorganize the work of the Young Men's Christian Association and the Student Christian Movement. Many of the meetings held with this in view took place in Hart House, and after long and careful consideration it was decided that these two bodies should be united under the title of the Student Christian Association, and it is hoped that the religious activities of the House in general will be greatly stimulated by the co-ordination of these two organizations.

THE THEATRE. During the past year the Board of Stewards of Hart House and the Board of Syndics of the Theatre arrived at an understanding by which—as far as possible—the Theatre will be put at the disposal of the various Faculties on certain nights. There has been the closest co-operation between the Director of the Theatre (Mr. Bertram Forsyth) and myself.

ATHLETIC ASSOCIATION. The relations between the Board of Stewards and the Athletic Directorate have been of the most cordial character throughout the year.

As Warden of Hart House, it has been my endeavour to make the personal acquaintance of as many undergraduates as possible. During the past year I have used my own rooms to entertain several hundred men, in small groups at a time.

Mr. W. H. Graham is leaving Hart House in July to take up other work. During the two years that he has been Treasurer of Hart House he has given unstinted time and energy, not only to the accounts, but to the other manifold interests of the House. Mr. J. R. Gilley, a Graduate of the Faculty of Applied Science and Engineering of 1921, has been appointed to take his place. Mr. R. D. Stott, a Graduate of the O.A.C., has been appointed as the Warden's Secretary in place of Mr. S. B. Wright.

The Board of Stewards and the Finance Committee, sitting regularly throughout the year, have given much thought and time to the many questions of policy which must constantly arise during the early years of an institution such as Hart House. Owing to the pressure of other duties, Mr. G. M. Smith has resigned from the Board of Stewards on which he has done such valuable work from its inception. The members of Hart House are well aware of the great debt they owe to the Senior and Junior members of these and of all the Committees for the vitality and vigour of the common life, which is fulfilling the ideal of the founders.

(17) REPORT OF THE CONNAUGHT ANTITOXIN LABORATORIES.

(*Dr. J. G. Fitzgerald, Director**).
(*Dr. R. D. Defries, Acting Director*).

During the past year the work of the Laboratories has been greatly extended. This has been largely due to the epoch-making discovery of Insulin by Dr. F. G. Banting and Mr. C. H. Best. As was pointed out in the last report, the Connaught Laboratories set aside a sum of $5,000 to make possible the production of the extract for use in the Toronto General Hospital and Hospital for Sick Children during the period in which the value of the extract was being determined. This co-operation on the part of the Laboratories was of the greatest value in the development of Insulin. At the conclusion of this period of clinical trial it was decided that the Laboratories should undertake the preparation of Insulin on a large scale sufficient to meet the needs of the clinical investigation which has been commended in several of the hospital centres in Canada, and ultimately, if required, to meet the need for Insulin in Canada. An Insulin division of the Laboratories was organized and Mr. C. H. Best was appointed in charge, with Mr. D. A. Scott as his assistant.

RESEARCH DIVISION. The important investigations in tuberculosis which have been conducted by Dr. Caulfeild and his associates, Miss Cohen, Miss MacLennan, and Mrs. La Rush, during the past four years, have been continued and valuable results have been obtained. The endeavour is being made in this research to ascertain the diagnostic and prognostic value of certain serological methods in tuberculosis by correlation with radiological, clinical and other observations. Further studies on the production of toxin by bacteria have been conducted by Miss Hanna and a number of interesting and important observations have been made which will appear in the next volume of studies published by the Research Division. The work of the Laboratories in connection with Insulin has not been confined to the preparation and distribution of this product. The rapid development of Insulin was made possible by team work of the different departments of the University. The Research Division of the Laboratories undertook the investigation of the chemical nature of Insulin, and Mr. P. J. Moloney has directed and carried out an extensive investigation of the chemical properties and nature of Insulin. Mr. D. M. Findlay was appointed later to assist him in this study. A great deal of valuable research work in connection with the methods of preparation of Insulin has been carried out under the direction of Mr. C. H. Best, in the Insulin Division, assisted by Mr. D. A. Scott, Mr. Wilfred Grant and Miss Ridout. Mr. Best has contributed a number of valuable papers on this subject during the year. Dr. D. T. Fraser has developed an additional method for determining the strength of Insulin, using white mice, which promises to be of considerable importance. The results of a number of these investigations have been published in various scientific journals during the year. A complete list of these papers, totalling fourteen, has been submitted.

ANTITOXIN DIVISION. Distribution of the various public health biological products prepared by the laboratories has been widespread. Requests for products have been received from China, Korea, New Zealand, British Honduras, Trinidad and Newfoundland. The major distribution has been, of course, in Canada, to the various Provincial Boards of Health and Hospitals. The biological products distributed included diphtheria antitoxin, tetanus antitoxin, anti-meningitis serum, anti-pneumococcus serum Type I, anti-rabies vaccine, anti-typhoid and paratyphoid vaccine, pertussis vaccine and normal horse serum. The Laboratories received in 1920 a license from the Treasury Department of the United States permitting the distribution of public health biological products in the United States after thorough inspection of the Laboratories. This license has been continued and in the report of the inspecting officer this year special commendation was made of the Laboratories at the University Farm.

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*Leave of absence from September to May.

INSULIN DIVISION. The preparation of Insulin has been carried out in laboratories in rooms which were made available in the basement of the Medical Building. These laboratories soon proved to be inadequate and quite unsatisfactory for the continued preparation of this product. Many difficulties in connection with large scale production have been met with. Professor Bain, of the Department of Applied Chemistry, has aided the work in many ways, and kindly placed at our disposal equipment, including a large rectifying still in the Mining Building. A gift of $10,000 from Mr. Bacon, of New York City, conveyed through Dr. F. G. Banting and Dr. Geyelin, of New York, for the special purpose of providing equipment for large scale production of Insulin, was received in August. This generous gift was of the greatest assistance and made possible the rapid extension of the plant and the distribution to eight of the large hospitals in Canada. The price of Insulin was reduced as a result of this new equipment and in every way this munificent gift served the purpose for which it was given. The Laboratories have been fortunate in securing from the Board of Governors the use of the building formerly occupied by the University of Toronto Y.M.C.A., as an Insulin laboratory. A request was made to the Provincial Government of Ontario for $25,000 to cover the cost of alterations and the purchase and installation of apparatus sufficient to meet the need for Insulin in Canada. The Government endorsed the suggestions and acceded to the request. The building and plant will be in operation early this summer. Insulin is being distributed through the co-operation of the Provincial Medical Associations and the Provincial Governments and the situation is being satisfactorily met.

The loyal and hearty co-operation of all members of the various divisions of these laboratories is gratefully acknowledged, which has made possible this work during the temporary absence of Dr. J. G. Fitzgerald, Director of the Laboratories, who was on leave of absence during the last year.

(18) STATEMENT REGARDING THE BIOLOGICAL MUSEUM.

(*Professor B. A. Bensley*).

During the year 1922-23, the collections of the Biological Museum and of the Royal Ontario Museum of Zoology were greatly increased by the addition of material collected by the staff, private donations and purchases. The technical staff of the Museum of Zoology completed a number of coloured casts of fishes, some smaller habitat mounts and a large habitat mount illustrating the natural history of the American black bear. Through the action of the Board of Trustees, two of the Heming canvases depicting northern life were obtained, thus completing a set of twelve paintings, of which ten had been previously acquired through the generosity of Sir Joseph Flavelle, Bart. Following is a list of the more important donations:

A mounted kudu antelope head, from Dr. H. M. East, Toronto.

An American goshawk, from Mrs. Ross, Toronto.

Six American woodcock, from Dr. L. H. Langstroth, Norton, N.B., through Professor R. B. Thomson.

Two blue geese, from Mr. E. R. C. Clarkson, Toronto.

A red-breasted merganser, from Mr. Stuart Thompson, Toronto.

An elephant skull, from Mr. Paul Hahn, Toronto.

A great horned owl, from Mrs. Kinney, Toronto.

A whistling swan, from Mr. T. McDonell, Toronto.

A Manchurian eared pheasant, lesser snow and Indian comb geese, from Mr. Geo. Corsan, Toronto.

Two cases of birds, from Miss Wright, Toronto; specimens obtained at Toronto by Mr. Geo. Wright.

A set of sixteen coloured lantern slides from Mr. W. H. Robinson, Industrial and Resources Department, Canadian National Railways, Toronto.

A case of birds, from Mr. W. Robinson, Toronto.

A Lady Amherst pheasant, from Mr. McLean-Howard, Toronto.

A collection of birds' eggs, from Dr. P. E. Clarkson, Toronto.

A snowy owl, from Dr. Paul Helliwell, Dryden, Ont.

A mounted sturgeon head, from Mr. Aemilius Jarvis, Toronto.

Many specimens were donated by the Parks Department of the City of Toronto, including a tiger, kangaroo, bear, bison, lioness, dingo and other mammals. Several collections have been acquired by purchase for the most at very nominal prices, including 1,431 bird and mammal skins from Mr. W. R. Campbell, Lobo, Ont; 72 mammal skins, from Mr. Stuart Criddle, Treesbank, Man.; and a large collection of birds' eggs from Mr. A. A. Wood, Coldstream, Ont.

(19) STATEMENT REGARDING THE PALÆONTOLOGICAL MUSEUM.

(*Professor W. A. Parks.*)

During the year two heads of a new species of trachodont dinosaur have been mounted in the gallery, and the skeletons of two other dinosaurs have been prepared. During the summer of 1922 a successful expedition was conducted in Alberta, resulting in the obtaining of several fine skeletons. The Director spent the summer in Europe, where considerable collections were made from the Upper Ordovician and Silurian of England, and from the Palæozoic, Cretaceous, and Tertiary of Belgium.

The more important acquisitions during the year are as follows:

By Donation:

Collection Tertiary Bryozoa—Dr. Ray S. Bassler, U.S. National Museum.
Slab with reptile tracks—Benjamin Howell, Esq., Princeton, N.J.
Devonian trilobites—Miss Evelyn Johnston, Brantford, Ont.
Two specimens Atikokania—J. E. Marks, Esq., Port Arthur (per Prof. Parsons).
Opalized wood—Alfred E. Bailey, Esq., 117 Vaughan Road, Toronto.

By Collection:

Richmond Fossils from Streetsville, Ont.—Mr. W. S. Dyer.
Large collection English Fossils—Professor Parks.
Large collection Belgian fossils—Professor Parks.
Dinosaurs from Cretaceous of Alberta—Mr. Sternberg.
Ordovician fossils from Workman's Brook, Ont.—The staff.

By Exchange:

- Collection of Hamilton Bryozoa—R. R. Hibbard, Esq., Buffalo, N.Y.
- Collection of Carboniferous fossils—Professor Reynolds, University of Bristol.
- Collection of Carboniferous, Cretaceous, and Jurassic fossils from western States—I. A. Keyte, Esq., Colorado Springs, Col.

By Purchase:

- Collection of Ostracoda—Dr. Ray S. Bassler, U.S. Nat. Museum.
- Collection of insects in amber—D. Dreuckhahn, Germany.
- Dapedius politus and Dudley fossils—R. Gregory & Co., London.
- Mesozoic fossils from the Rocky mountains—F. P. Laine, Esq., Calgary.
- Cretaceous and Tertiary Bryozoa—E. Voigt, Dessau, Germany.
- Slab of Carboniferous leaves from Pennsylvania.

(20) STATEMENT REGARDING THE MINERALOGICAL MUSEUM.

(*Professor T. L. Walker.*)

In the Royal Ontario Museum of Mineralogy, which is under the direction of Professor T. L. Walker, are very extensive collections of minerals and rocks. The most generous benefactors of this section were men connected with the mining industry. To make the collections more useful to visitors the large specimens contained in the high cases are provided with special explanatory labels. In the cases on the east wall of the gallery, a special display of the minerals of Canada is arranged. The Director appeals to friends of the University for contributions of minerals and rocks with a view to making these collections as complete as possible.

During the past year the collections have been increased by donations from a large number of friends, particularly mine owners and mining engineers in the Cobalt, Sudbury, Porcupine and Kirkland Lake Areas.

Notable presentations have been made by the International General Electric Company, the Albert Manufacturing Company, and D. A. Nichols, Esq,.

Important exchanges have been made with the United States National Museum, Harvard University, the Museum of Natural History, Paris, and F. N. Ashcroft, Esq., London, England.

(21) STATEMENT REGARDING THE MUSEUM OF ARCHÆOLOGY.

(*Professor C. T. Currelly*).

The rapid growth of the Royal Ontario Museum of Archæology has continued throughout the present year. Some hundreds of important gifts have been received. The importance of many of the pieces will make them, for all time to come, great national treasures that will have a marked effect upon the development of the country along all lines in which any artistic judgment is shown.

The phenomenal development of the George Crofts Collection of Chinese art still continues the outstanding feature, though there has been a steady growth in the Classical, Furniture, Japanese, Indian, Costume, Musical Instruments, Ironwork and Faience departments.

Dr. Harcum, of the Museum staff, and Dr. David M. Robinson, of Johns Hopkins University, have continued their work on our publication of the classical vases.

The teaching work in the Museum has increased, and numerous large meetings have taken place. We are glad to see that the use of the Museum is growing steadily.

The routine work of the Museum has proceeded as usual. The list of donations to the Museum is too long to be printed.

APPENDIX B.

(1) Enrolment in the Colleges.
(2) Enrolment in University subjects.
(3) Registration in Courses in the Faculty of Arts.
(4) Registration for Graduate Courses.

(1) Enrolment in the Colleges.

The students in University College were enrolled as follows:

	Greek	Latin	Ancient History	English	German	French	Orientals	Ethics
First Year—								
Pass..........	11	208	77	212	28	200	120	....
Honours.......	6	28	43	130	26	106	4	8
Second Year—								
Pass..........	5	44	....	261	10	162	96	44
Honours.......	4	6	49	84	29	40	3	5
Third Year—								
Pass..........	4	13	....	171	7	102	63	36
Honours.......	2	8	1	33	15	25	3	8
Fourth Year—								
Pass..........	5	10	....	103	8	57	56	28
Honours.......	4	3	2	54	7	37	5	11
Totals—								
Pass..........	25	275	77	747	53	577	335	108
Honours.......	16	45	95	301	77	152	15	32

The students in Victoria College were enrolled as follows:

	Greek	Latin	Ancient History	English	German	French	Orientals	Ethics
First Year—								
Pass	4	89	23	78	5	83	16	....
Honours	1	8	20	63	30	44	....	4
Second Year—								
Pass	5	21	....	119	5	78	9	13
Honours	3	5	16	25	11	15	1	4
Third Year—								
Pass	3	8	....	55	....	32	....	16
Honours	3	4	3	15	9	18	1	10
Fourth Year—								
Pass	3	8	....	65	3	32	....	6
Honours	1	2	1	15	1	13	3	6
Totals—								
Pass	25	126	23	317	13	225	25	35
Honours	5	19	40	118	51	90	5	24

The students in Trinity College were enrolled as follows:

	Greek	Latin	Ancient History	English	German	French	Orientals	Ethics
First Year—								
Pass	2	33	....	28	2	26	5	....
Honours	....	2	3	9	....	7	....	....
Second Year—								
Pass	....	8	....	16	....	14	....	....
Honours	....	2	....	2	4	6	....	....
Third Year—								
Pass	2	7	1	16	1	10	....	3
Honours	2	2	....	1	....	1	....	....
Fourth Year—								
Pass	1	3	2	13	....	9	....	3
Honours	2	2	2	2	1	1	....	1
Totals—								
Pass	5	51	3	73	3	59	5	6
Honours	4	8	5	14	5	15	....	1

The students in St. Michael's College were enrolled as follows:

	Greek	Latin	Ancient History	English	German	French	Philosophy	Ethics
First Year—								
Pass	......	52	3	52	5	50	......	......
Honours	......	4	4	12	4	11	1	......
Second Year—								
Pass	......	47	......	58	2	49	19	......
Honours	......	1	......	7	3	9	10	8
Third Year—								
Pass	......	5	......	20	2	20	18	16
Honours	1	2	1	7	1	8	4	4
Fourth Year—								
Pass	......	5	......	21	3	20	18	9
Honours	1	1	1	3	......	3	4	4
Totals—								
Pass	......	109	3	151	12	99	55	25
Honours	2	8	6	29	8	31	19	16

(2) ENROLMENT IN UNIVERSITY SUBJECTS.

The following tables exhibit the numbers attending lectures in University subjects, together with the number of those taking the practical work in the laboratories:—

DEPARTMENT OF MATHEMATICS.

	Pass	Pass and Honours	Honours
Faculty of Arts—			
First Year	382	......	103
Second Year	39	......	84
Third Year	9	......	48
Fourth Year	16	......	9
Faculty of Medicine—			
First Year	19	......	......
Second Year	5	......	......
Third Year	2	......	......
Faculty of Applied Science—			
First Year	......	137	......
Second Year	......	142	......
Total	472	279	244

DEPARTMENT OF PHYSICS.

	Pass	Pass and Honours	Honours	Laboratory
Faculty of Arts—				
First Year	358		86	86
Second Year	12		55	62
Third Year	6		29	35
Fourth Year	3		27	10
Faculty of Medicine—				
First Year		95		95
Second Year		9		9
Third Year		5		5
Faculty of Forestry—				
First Year	12			12
Faculty of Household Science—				
First Year	27			27
School of Graduate Studies			20	16
Total	418	109	217	357

DEPARTMENT OF BIOLOGY.

	Pass	Pass and Honours	Honours	Laboratory
Faculty of Arts—				
First Year	359		77	77
Second Year	32		54	86
Third Year	15		21	36
Fourth Year	15		11	26
University Extension—				
Y.M.C.A.	13			13
Hamilton	21			21
Faculty of Medicine—				
First Year		96		96
Second Year		134		134
Faculty of Applied Science—				
Fourth Year		17		17
Faculty of Forestry—				
First Year		10		10
Fourth Year		10		10
School of Graduate Studies				10
Ontario Agricultural College:				
Second Year		50		50
Third Year		32		32
Totals	455	349	163	620

DEPARTMENT OF BOTANY.

	Pass	Pass and Honours	Honours	Laboratory
Faculty of Arts—				
First Year	359		80	80
Second Year	54		32	86
Third Year	13		3	16
Fourth Year	19		7	26
Faculty of Applied Science		25		25
Faculty of Forestry—				
First Year		14		14
Fourth Year		11		11
School of Graduate Studies			13	13
Total	445	50	135	271

DEPARTMENT OF CHEMISTRY.

	Pass	Pass and Honours	Honours	Laboratory
Faculty of Arts—				
First Year	316		113	113
Second Year	89		64	111
Third Year	34		11	15
Fourth Year	5		7	12
Faculty of Medicine—				
First Year		96		96
Second Year		116		116
Faculty of Applied Science—				
First Year		24		24
Second Year		29		34
Third Year		99		99
Fourth Year		27		27
Faculty of Forestry—				
First Year	11			11
Second Year	14			14
School of Graduate Studies			19	15
Total	469	391	214	687

DEPARTMENT OF GEOLOGY.

	Pass	Pass and Honours	Honours	Laboratory
Faculty of Arts—				
First Year	317	44	51	....
Second Year	42	....	12	12
Third Year	3	....	3	5
Fourth Year	12	....	4	16
Occasional Students	....	....	2	1
University Extension	72	....	....	72
Faculty of Applied Science—				
Second Year	....	38	....	5
Third Year	....	45	....	9
Fourth Year	....	61	....	20
Faculty of Forestry—				
Second Year	....	14	....	....
Third Year	....	11	....	11
School of Graduate Studies	....	....	4	3
Total	446	213	76	154

DEPARTMENT OF MINERALOGY.

	Pass	Pass and Honours	Honours	Laboratory
Faculty of Arts—				
Second Year	96	....	15	111
Third Year	....	....	14	10
Fourth Year	....	....	7	7
Occasional Students	....	....	2	2
Faculty of Applied Science—				
First Year	....	36	....	36
Second Year	....	33	....	33
Third Year	....	8	....	8
Fourth Year	....	18	....	18
Faculty of Forestry—				
Second Year	....	14	....	14
Third Year	....	2	....	2
School of Graduate Studies	....	....	2	2
Total	96	111	40	243

DEPARTMENT OF PHILOSOPHY.

	Pass	Honours
Faculty of Arts—		
First Year	...	16
Second Year	75	18
Third Year	76	18
Fourth Year	60	16
University Extension	73	...
Faculty of Medicine—		
Second Year	8	...
Third Year	8	...
School of Graduate Studies	...	28
Department of Social Service	48	...
Totals	348	96

DEPARTMENT OF POLITICAL SCIENCE.

	Pass	Honours
Faculty of Arts—		
First Year	...	79
Second Year	177	87
Third Year	119	49
Fourth Year	92	38
University Extension	8	...
Faculty of Medicine—		
Second Year	25	...
Third Year	25	...
Faculty of Applied Science—		
Second Year	175	...
Faculty of Forestry—		
Third Year	15	...
School of Graduate Studies	...	14
Department of Social Science		
First Year	37	...
Second Year	8	...
Department of Public Health Nursing	41	...
Occasional Students	...	19
Totals	722	286

DEPARTMENT OF HISTORY.

	Pass	Honours
Faculty of Arts—		
First Year		99
Second Year	138	80
Third Year	101	49
Fourth Year	61	52
University Extension	75	
Occasional Students	8	2
Faculty of Medicine	37	
School of Graduate Studies		11
Totals	420	293

DEPARTMENT OF ITALIAN AND SPANISH.

	Italian		Spanish	
	Pass	Honours	Pass	Honours
Faculty of Arts—				
First Year	26	7	104	45
Second Year	7	1	55	36
Third Year		2	32	16
Fourth Year	2	2	25	16
School of Graduate Studies		3		3
Total	35	15	216	116

DEPARTMENT OF HOUSEHOLD SCIENCE.

	Pass	Honours
Faculty of Arts—		
First Year		29
Second Year		21
Third Year	21	12
Fourth Year	7	19
University Extension	26	
Faculty of Medicine—		
Third Year	143	
School of Graduate Studies		1
Department of Public Health Nursing	45	
Total	242	81

(3) REGISTRATION IN COURSES IN THE FACULTY OF ARTS, 1922-1923.

Courses	First Year				Second Year				Third Year				Fourth Year				Total
	U C	V C	T C	M C	U C	V C	T C	M C	U C	V C	T C	M C	U C	V C	T C	M C	
Pass	203	76	28	51	147	62	17	47	118	34	15	19	72	42	10	22	963
Classics	6	1			4	3	1			3	2	1	2	1	2	22	28
Greek and Hebrew																	
Orientals					1	1			1	1			1	3			8
Orientals (Greek Option)																	
French, Greek and Latin									1	1				1			3
Moderns	35	23	3	5	37	7	2	5	26	15	1	4	25	12	1	4	205
English and History	29	11	3	4	3	8	4	2	12	4		4	6	8	1	1	100
Modern History	1	2	1		2	4	1		2			1	1				15
Political Science	9	1	1	1	22	15	4	2	13	8			21	4	3		104
Commerce and Finance	16	6	1	1	19	8			6	6			4	1			68
Philosophy		1	1		5	4		8	4	6		4	1	2		4	40
Philosophy, English and History	7	3	2	1	8	1	2	2	2	4			8	4	1		45
Mathematics		1		1	4	2											8
Mathematics and Physics	19	6	2	3	4	1			12	6			5	6			64
Natural and Physical Sciences	34	13	1	1													49
Physics					1				1								2
Biology					4	1				2			3				10
Physiology and Biochemistry					1	1											2
Biological and Medical Sciences					9	12		1	9	7	1		12	7	2	1	61
Chemistry and Mineralogy I					2	1			4	2							9
Chemistry and Mineralogy II									1				2				3
Chemistry					4	2			4				4	1		1	16
Geology and Mineralogy					3				1								4
Household Science	1		1			1			2				2	1			8
Household Economics	9	15	1	1	12	7			4	4	1		8	8			70
Science for Teachers					1							1		2			4
Commerce	31	12	1	1	15	3			6			1					70
Totals	400	171	46	70	308	144	31	67	229	103	20	35	177	103	20	35	1,959

(4) REGISTRATION FOR GRADUATE COURSES.

	Ph.D.	M.A.	M.D.	M.A.Sc.	M.Arch.	C.E.	M.E.	E.E.	D.Paed.	Graduate
Department of Anatomy	1									
" " Architecture					1					
" " Astronomy		1								
" " Biochemistry	2	4								
" " Biology	5	1								
" " Botany	7	4								1
" " Chemical Engineering				6						
" " Chemistry	11	15								1
" " Civil Engineering				1		4				
" " Classics		5								3
" " Educational Theory		4								1
" " Electrical Engineering								•2		
" " English		17								15
" " Food Chemistry		3								
" " Forestry										
" " Geology and Palæontology	2	1								
" " German		1								1
" " History	2	10								1
" " Household Science										
" " Hygiene and Preventive Medicine	2									
" " Mathematics	1	7								1
" " Mechanical Engineering							1			
" " Metallurgical Engineering				1						
" " Mineralogy		1								
" " Mining Engineering				4						
" " Pathology and Bacteriology		1	1							
" " Pathological Chemistry		2	1							
" " Pedagogy									38	
" " Pharmacology										
" " Philosophy	4	20								5
" " Physics	11	8								1
" " Physiology		3								
" " Political Science	3	26								1
" " Psychology		2								1
" " Romance Languages	4	2								8
" " Semitic Languages	2	5								
" " Zymology		4								
Total	57	147	2	12	1	4	1	2	38	40

APPENDIX C.

Results of Examinations.

(1) Faculty of Arts.
(2) Faculty of Medicine.
(3) Faculty of Applied Science and Engineering.
(4) Faculty of Forestry.
(5) Ontario College of Education.
(6) Faculty of Music.

(1) Faculty of Arts.

First Year.

	University of Toronto	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	Totals	Passed	Starred	Failed	Transferred	Aegrotat	Deferred	Debarred
Pass	....	206	77	30	51	364	181	115	68	....	8	....	66
Supplementals	....	48	20	8	13	89	52	37	....	....	....	....	....
Classics	....	6	1	....	....	7	6	1	....	....	1	....	....
French, Greek and Latin	....	....	....	....	....	....	....	....	....	....	....	....	....
Moderns	....	33	22	3	5	63	44	....	....	19	2	....	1
English and History	....	24	11	2	4	41	30	1	....	10	....	....	2
Modern History	....	1	2	1	....	4	1	1	....	2	....	....	....
Political Science	....	8	1	1	1	11	11	....	....	....	....	....	....
Phil., English and History	....	6	3	2	1	12	7	1	....	4	1	....	1
Commerce and Finance	....	15	6	1	....	22	16	....	....	6	....	....	1
Philosophy	....	....	1	....	....	1	1	....	....	....	....	....	....
Mathematics	....	....	1	....	1	2	....	....	....	2	....	....	....
Mathematics and Physics	....	18	6	2	3	29	16	4	....	9	1	....	2
Natural and Physical Science	....	30	12	1	1	44	28	8	....	8	....	....	4
Household Science	....	1	....	1	....	2	2	....	....	....	....	....	....
Household Economics	....	8	15	1	1	25	21	....	....	4	1	....	....
Commerce	....	31	11	1	1	44	13	21	10	....	1	....	10
Occasional Students	7	5	2	....	3	17	13	....	4	....	....	....	....
Total	7	440	191	54	85	777	442	189	82	64	15	....	87

Second Year.

	University of Toronto	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	Totals	Passed	Starred	Failed	Transferred	Aegrotat	Deferred	Debarred
Pass	....	136	60	17	41	254	119	92	43	....	8	....	65
Supplementals	....	25	20	6	8	59	44	15	....	....	....	....	....
Classics	....	5	3	1	....	9	8	1	....	....	....	....	....
Orientals	....	2	....	....	....	2	1	1	....	....	....	....	....
French, Greek and Latin	....	....	....	....	....	....	....	....	....	....	....	....	....
Moderns	....	35	6	2	6	49	42	1	....	6	....	....	....
English and History	....	3	8	4	2	17	14	1	....	2	....	....	....
Modern History	....	2	4	1	....	7	6	....	....	1	....	....	1
Political Science	....	22	13	4	2	41	28	1	2	10	3	....	5
Commerce and Finance	....	19	7	....	....	26	12	6	2	6	....	2	5
Philosophy	....	4	5	....	6	15	12	2	....	1	....	....	....
Phil., English and History	....	8	1	2	2	13	7	....	1	5	....	....	1
Mathematics	....	6	2	....	....	8	7	....	1	....	1	....	....
Mathematics and Physics	....	2	1	....	....	3	3	....	....	....	1	....	....
Physics	....	1	....	....	....	1	1	....	....	....	....	....	1
Biology	....	4	1	....	....	5	3	2	....	....	....	....	....
Physiology and Biochemistry	....	1	....	....	....	1	1	....	....	....	....	....	....
Biological and Medical Science	....	8	12	....	1	21	17	2	1	1	1	1	3
Chemistry and Mineralogy	....	2	1	....	....	3	3	....	....	....	....	....	....
Chemistry	....	4	2	....	....	6	3	3	....	....	....	1	....
Geology and Mineralogy	....	3	....	....	....	3	1	2	....	....	....	....	....
Household Science	....	....	1	....	....	1	1	....	....	....	....	....	....
Household Economics	....	12	8	....	....	20	14	4	1	1	2	1	....
Science for Teachers	....	1	....	....	....	1	1	....	....	....	....	....	....
Commerce	....	15	3	....	....	18	14	1	3	....	....	....	2
Occasional Students	3	9	1	....	2	15	10	1	4	....	....	....	....
Totals	3	329	159	37	70	598	373	134	58	33	16	5	82

Third Year.

	University of Toronto	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	Totals	Passed	Starred	Failed	Transferred	Aegrotat	Deferred	Deferred
Pass	....	111	31	16	19	177	91	65	21	....	3	....	35
Supplementals	....	10	4	3	2	19	14	5	....	....	....	....	....
Classics	....	....	3	2	1	6	6	....	....	....	....	....	....
Orientals	....	1	1	....	....	2	1	....	1	....	....	....	....
Orientals (Greek Option)	....	....	....	....	....	....	....	....	....	....	....	....	....
Greek and Hebrew	....	....	....	....	....	....	....	....	....	....	....	....	....
Moderns	....	25	15	1	4	45	42	3	....	....	....	....	....
French, Greek and Latin	....	1	1	....	....	2	2	....	....	....	....	....	....
English and History	....	11	4	....	4	19	18	1	....	....	....	....	....
Modern History	....	2	....	....	1	3	3	....	....	....	....	....	....
Political Science	....	13	8	....	....	21	18	2	....	1	....	....	....
Commerce and Finance	....	6	6	....	....	12	8	4	....	....	1	2	3
Philosophy	....	5	5	....	4	14	12	2	....	....	....	2	2
Philosophy, English & History	....	2	4	....	....	6	5	1	....	....	....	....	....
Mathematics and Physics	....	12	6	....	....	18	16	2	....	....	....	....	1
Physics	....	1	....	....	....	1	1	....	....	....	....	....	....
Biology	....	....	2	....	....	2	2	....	....	....	....	....	....
Biological and Medical Science	....	10	6	1	....	17	16	1	....	....	....	....	....
Chemistry and Mineralogy I	....	4	2	....	....	6	5	....	1	....	....	....	....
Chemistry and Mineralogy II	....	1	....	....	....	1	....	1	....	....	....	....	....
Chemistry	....	4	....	....	....	4	2	1	....	1	....	....	....
Geology and Mineralogy	....	1	....	....	....	1	1	....	....	....	....	....	....
Household Science	....	2	....	....	....	2	2	....	....	....	....	....	....
Household Economics	....	4	4	1	....	9	8	1	....	....	....	....	1
Science for Teachers	....	....	....	....	1	1	1	....	....	....	....	....	....
Commerce	....	6	....	....	1	7	7	....	....	....	1	....	....
Occasional Students	....	6	....	....	....	6	2	4	....	....	....	....	....
Totals	....	248	102	24	37	401	283	93	23	2	5	4	42

Fourth Year.

	University of Toronto	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	Totals	Passed	Granted standing on Active Service	Starred	Failed	Aegrotat	Deferred	Pass Degree
Pass	....	75	43	13	18	149	113	8	25	3	3	..	..
Supplementals	....	1	3	....	1	5	5	....	....	....	....	..	..
Classics	....	2	1	2	1	6	6	....	....	....	....	..	..
Orientals	....	1	3	....	....	4	4	....	....	....	....	..	..
Orientals (Greek)	....	....	....	....	....	....	....	....	....	....	....	..	..
Greek and Hebrew	....	....	....	....	....	....	....	....	....	....	....	..	..
French, Greek and Latin	....	....	1	....	....	1	1	....	....	....	....	..	..
Moderns	....	24	12	1	4	41	38	....	3	....	....	..	..
English and History	....	6	8	1	1	16	16	....	....	....	1	..	..
Philosophy, English & History	....	9	5	1	....	15	13	2	....	....	....	..	..
Modern History	....	....	....	....	....	....	....	....	....	....	....	..	..
Political Science	....	22	6	2	....	30	23	4	3	....	1	..	..
Commerce and Finance	....	5	1	....	....	6	5	1	....	....	1	..	..
Philosophy	....	2	3	....	4	9	5	2	2	....	....	..	..
Mathematics and Physics	....	6	6	....	....	12	10	2	....	....	1	..	..
Biology	....	3	....	....	....	3	3	....	....	....	....	..	..
Physiology and Biochemistry	....	....	....	....	....	....	....	....	....	....	....	..	..
Biological and Medical Science	....	13	7	2	1	23	21	1	1	....	....	1	..
Chemistry and Mineralogy I	....	1	....	....	....	1	....	1	....	....	....	..	..
Chemistry and Mineralogy II	....	2	....	....	....	2	2	....	....	....	....	..	..
Chemistry	....	6	1	....	1	8	6	2	....	....	....	..	1
Household Science	....	2	1	....	....	3	3	....	....	....	2	..	..
Household Economics	....	8	8	....	....	16	14	....	1	1	....	..	2
Science for Teachers	....	....	2	....	....	2	2	....	....	....	....	..	..
Occasional Students	2	3	2	....	....	7	2	5	....	....	....	..	..
Totals	2	191	113	22	31	359	292	28	35	4	7	5	1

TEACHERS' CLASSES.

	Passed	Starred	Aegrotat
May Examination	116	35	3
September Examination	79	25	....
Total	195	60	3

(2) FACULTY OF MEDICINE.

	Passed	Starred	Failed
First Year	57	22	14
Second Year	89	25	2
Third Year	134	22	7
Fourth Year (Six Years' Course)	98	28	2
Fourth Year (Five Years' Course)	169	45	4
Fifth Year	178	25	3
B. Sc. (Med.)	3	....	1
Totals	728	167	33

(3) FACULTY OF APPLIED SCIENCE AND ENGINEERING.

	Passed with Honours	Passed	Starred	Failed
First Year:				
Civil Engineering	6	19	10	5
Mining Engineering	1	6	4	3
Mechanical Engineering	3	24	11	3
Architecture	1	6	2	....
Chemical Engineering	4	13	7	6
Electrical Engineering	8	22	7	5
Metallurgical Engineering	....	1	....	1
Second Year:				
Civil Engineering	3	19	14	5
Mining Engineering	1	6	4	....
Mechanical Engineering	3	24	14	3
Architecture	1	10	3	1
Chemical Engineering	4	22	10	3
Electrical Engineering	9	35	15	9
Metallurgical Engineering	1	5	2	....
Third Year:				
Civil Engineering	3	27	16	5
Mining Engineering	1	7	3	1
Mechanical Engineering	6	26	8	3
Architecture	1	5	1	....
Chemical Engineering	4	25	11	1
Electrical Engineering	8	43	17	6
Metallurgical Engineering	....	1	1	....
Fourth Year:				
Civil Engineering	8	32	3	1
Mining Engineering	7	13	....	....
Mechanical Engineering	6	50	7	1
Architecture	3	9	1	....
Chemical Engineering	23	31	2	....
Electrical Engineering	12	50	7	1
Metallurgical Engineering	1	7	2	....

(4) FACULTY OF FORESTRY.

	Passed	Honours Deferred	Failed
First Year	6	3	1
Second Year	4	9	1
Third Year	7	4	2
Fourth Year	10	1	1

(5) ONTARIO COLLEGE OF EDUCATION.

	Passed	Failed
*High School Assistants' Course	207	....
Specialists' Course	102	....
First Class Public School Course	31	....
Elementary Art Course	25	....
Elementary Physical Culture Course	134	....
One Year Household Science Course	18	....
Bachelor of Pedagogy Course	20	....
Bachelor of Pedagogy Course (passed in part)	3	....
Number who failed in whole or part	....	40

*Many of these are included among those who passed or failed in the other courses in this list.

(6) FACULTY OF MUSIC.

	Passed	Starred	Failed
Bachelor of Music:			
First Year	14	2	3
Second Year	5	3	1
Third Year	2	....	....
	21	5	4

APPENDIX D.

GEOGRAPHICAL DISTRIBUTION OF STUDENTS.

The geographical distribution of students is as follows:

FACULTY OF ARTS.

	University of Toronto	University College	Victoria College	Trinity College	St. Michael's College	Total
Ontario: (1) Province	91	531	313	88	111	1,134
(2) Toronto	153	579	181	20	91	1,024
Nova Scotia		2		1		3
New Brunswick		5	2	1	2	10
Prince Edward Island		3		1		4
Quebec		5	2		1	8
Manitoba		5	2	1		8
Saskatchewan	1	8	19	1	1	30
Alberta		6	3	1		10
British Columbia		15	6	4	2	27
Yukon		1			1	2
United States		6	7	5	4	22
Elsewhere	3	17	12		1	33
Duplicate registrations		5	1		1	28
Totals	248	1,178	546	123	213	2,308

SUMMARY.

	Faculty of Arts	Graduate Studies	Faculty of Medicine	Faculty of Applied Science	College of Education	Faculty of Forestry	Faculty of Music	Department of Social Service	Department of Public Health Nursing	Totals
Ontario:										
(1) Province	1,134	107	535	419	196	21	16	168	18	2,614
(2) Toronto	1,024	157	342	275	86	17	22	136	20	2,079
Nova Scotia	3	3	5	4	2	1		14	1	33
New Brunswick	10	2			1	1		6	2	22
Prince Edward Island	4	1	2					1	1	9
Quebec	8	1	7	1	2	2		3		24
Manitoba	8	2	6	4	2	3		1	2	28
Saskatchewan	30	2	18	9	1		4	4		68
Alberta	10	7	13	9	5	1	2	2	1	50
British Columbia	27	8	34	5	2	2	1	4		83
Yukon	2		1	1						4
United States	22	7	10	3	2		2	1		47
Elsewhere	33	7	13	11		2		7	2	75
Duplicates	28	4								60
Totals	2,287	300	986	741	299	50	47	347	47	5,044

The students from the Province of Ontario are distributed as follows:

County	Faculty of Arts	Faculty of Medicine	Faculty of Applied Science	College of Education	Faculty of Forestry	Faculty of Music	Graduate Studies	Department of Social Service	Department of Public Health Nursing	Totals
Algoma	10	1	8	2	1	1	......	2	......	25
Brant	30	24	16	5	1	......	4	1	......	81
Bruce	27	14	12	5	1	......	......	8	......	67
Carleton	57	17	15	3	2	......	5	14	1	114
Dufferin	7	9	3	1	1	......	1	1	......	23
Dundas	8	2	1	7	......	......	3	1	......	22
Durham	18	9	5	1	......	2	3	4	1	43
Elgin	14	11	15	4	......	......	1	4	......	49
Essex	38	12	10	3	......	1	3	3	......	70
Frontenac	4	2	......	9	1	......	1	1	......	18
Glengarry	3	......	......	5	......	......	......	1	1	10
Grenville	3	3	3	3	......	......	......	2	......	14
Grey	30	22	8	4	2	......	4	5	1	76
Haldimand	10	12	7	2	......	......	1	......	......	32
Haliburton	......	......	......	......	......	......	......	1	......	1
Halton	29	13	1	1	......	2	4	5	1	67
Hastings	24	12	3	5	......	......	4	5	1	54
Huron	32	18	11	7	1	......	9	4	......	82
Kenora	......	3	......	1	......	......	......	......	......	4
Kent	27	14	7	3	......	......	......	......	......	51
Lambton	21	19	9	5	......	......	......	1	......	55
Lanark	18	5	1	8	2	1	2	5	......	42
Leeds	15	6	2	5	1	......	......	......	......	29
Lennox and Addington	12	2	1	1	......	......	......	2	......	18
Lincoln	40	15	9	3	......	......	5	2	......	74
Manitoulin	2	3	......	......	......	......	......	......	......	5
Middlesex	27	11	22	13	1	3	6	7	......	90
Muskoka	8	2	7	......	......	......	......	2	1	20
Nipissing	3	6	2	......	......	......	1	3	......	15
Norfolk	10	8	4	2	......	......	......	1	......	25
Northumberland	20	6	5	6	......	......	1	5	......	43
Ontario	36	16	12	2	......	......	3	4	......	73
Oxford	30	8	11	4	......	......	2	6	3	64
Parry Sound	6	5	2	......	1	......	......	2	......	16
Peel	24	14	11	1	......	......	3	4	1	58
Perth	33	20	16	12	......	......	3	8	......	92
Peterborough	34	6	8	4	......	......	4	4	......	60
Prescott	2	1	......	2	......	......	......	......	......	5
Prince Edward Island	1	3	1	3	......	......	......	......	......	8
Rainy River	1	......	......	......	......	......	......	......	......	1
Renfrew	14	1	4	3	......	1	1	3	......	27
Russell	2	1	1	2	......	......	......	......	......	6
Simcoe	50	38	21	9	......	......	6	11	3	138
Stormont	12	......	3	......	......	......	......	......	......	15
Sudbury	3	3	1	1	......	......	......	......	......	8
Thunder Bay	9	1	3	2	......	......	......	......	......	15
Timiskaming	3	4	4	1	......	......	......	1	......	13
Victoria	19	12	8	2	......	......	1	6	......	48
Waterloo	37	14	28	2	1	......	1	1	1	85
Welland	36	21	15	4	......	......	3	5	1	85
Wellington	47	19	8	5	......	......	8	7	......	94
Wentworth	118	38	29	11	1	4	5	9	2	217
York	70	29	35	12	4	1	9	7	......	167
Toronto	1,024	342	275	86	17	22	157	136	20	2,079
Totals	2,158	877	694	282	38	38	264	304	38	4,693

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